A Study Of Environmental Education, Attitude And Awareness Among The Students In Higher Education In Nagaland

Thesis submitted to Nagaland University for the degree of Doctorate of Philosophy

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Candidate Declaration

This is to certify that I Mr. L. KHOLI, Ph.D., Research Scholar, Regd. No.445/2011, Date of Regd. 12/6/2009, Nagaland University, Kohima - Campus, Meriema declare that my thesis entitled, **A study Of Environmental Education, Attitude And Awareness Among The Students In Higher Education In Nagaland**, is original and till today no research work has been conducted on this cited topic. The research work is carried out under the Supervision and Guidance of Dr.(Mrs) LIMALA, Assistant Professor, Nagaland University. I, the investigator here, give my declaration that the Ph.D., thesis is a fact report and firsthand information is being collected for my study purposes. I am submitting my Thesis for the degree of Doctorate of Philosophy.

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Acknowledgment

I would like to give a special thanks to my supervisor, guide and teacher Dr.(Mrs.) Limala, Assistant Professor, Department of Education, Nagaland University, Kohima- Campus, Meriema for her untiring efforts in helping throughout the Ph.D., Research works and giving timely advice and guidance. Through her constant help and support my research works have been accomplished successfully.

I shall ever be grateful and thankful to Ms. Arongdi Pongener for her encouragement and tireless effort in helping my research work. And to all the Principals, Teachers, Students and Local Community for willingly participating during the Data Collections. Without which my research works would not bring out the factual, originality and meaningful conclusion, about **A Study Of Environmental Education, Attitude And Awareness Among The Students In Higher Education In Nagaland.**

Lastly, but not the least, I owe a deep sense of gratitude and thankfulness to my Wife, Family, Friends and Well Wishers for their constant support and encouragement throughout my research work.

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ABBREVIATION USED

MIS	Management Information System
NSS	National Service Scheme
NGO	Non-Governmental Organization
NGC	National Green Crops
SD	Standard Deviation
UGC	University Grant Commission
UNCED	United National Conference on Environment and Development
UNESCO	United nations Educational , Scientific and Cultural Organization

CHAPTER - I
INTRODUCTION

1.1 INTRODUCTION OF THE STATE OF NAGALAND

1.1.1 BACKGROUND OF NAGALAND

Nagaland is the 16th state of the Indian Union. It is the third smallest state of India and is located in the north eastern-region of the country. Known for its beautiful green mountains, it is a store house of rich flora and fauna. Nagaland was officially inaugurated by the then President of India, Dr. Radhakrishnan as the 16th state of India on the 1st of December, 1963 with P.Shilu as the first Chief Minister.

1.1.2 GEOGRAPHICAL LOCATION AND PEOPLE HABITATS

Nagaland is located in the extreme northeastern region of India with Kohima as its capital. The State is bounded by Assam in the west, Myanmar in the East, by Arunachal Pradesh in the North and Manipur in the South. It runs more or less parallel to the hilly ranges. Nagaland is a beautiful state, which lies between $25^0.6^0$ North and $27^0.4^0$ North, $93^0.20^0$ East and $95^0.15^0$ East. It has a total geographical area of 16, 5279 square kilometer. The land is lush with luxuriant forests, rolling mountains, enchanting valleys and swift flowing streams and rivers. The attitude varies from 200 meters in plains to 3,840 meters in the hills.

The climate of the State varies from subtropical to temperate. The terrain is predominantly hilly and is covered by a rich and varied floral and faunal assemblage. It forms part of one of the 25 biodiversity hotspots of the world that is the Indo-Biodiversity hotspot.

The State comprises of 11(eleven) administrative districts with 52 blocks and 1286 inhabited villages. Each district is inhabited by one or more tribes thereby imparting to it distinct linguistic, cultural, traditional and socio-political characteristics. The inhabitants of Nagaland are tribal having distinctive dialects and cultures. The population is predominantly rural with about 71% of its population living in villages.

Nagaland is home to seventeen major tribes and sub-tribes. The major tribes are Ao, Angami, Chang, Chakhesang, Konyak, Kuki, Kachari, Khiemungam, Lotha, Phom, Pochury, Rengma, Rongmei, Sangtam, Sumi, Yimchunger and Zeliang. Each tribe is distinct from the others in terms of custom, tradition, language and costumes.

1.1.3 POPULATION AND LITERACY

The population of Nagaland state according to the 2001 census is 19,18,636 and 2011 census is19,80,602. The male population is 10,25,707 and female is 9,54,895. For the first time in the history of census in Nagaland a negative growth rate minus 0.47%of population has been recorded in March 2011. Literacy rate as per 2001 census is 57.11% and in 2011 census, the literacy rate of Nagaland is 80.11%.

1.2 HISTORY OF FORMAL EDUCATION IN NAGALAND

The Naga inhabited area came under the colonial rule of the British Empire. Thus with the coming of the British rule, the Nagas were introduced to a formal system of school education. School Education to the Nagas was spearheaded by the Christian Missionaries. Rev. E.W. Clark was the first missionary to establish a school in the Ao inhabited area of Nagaland in 1872. The second place was established in Kohima, initiated by Rev.Dr.D.C.King. He was the first American Missionary to arrive in Kohima in 1878. Thus, by 1880's the British established many schools in Naga Hills. It enabled the Nagas to read the Bible and sing gospel hymns. Along with the introduction of a new religion, the missionaries introduced secular education allowing the Nagas to read, write and solve arithmetic problems.

With the increase in literacy percentage, the students in Primary Schools have been increasing rapidly along with a growth in the number of schools. Many institutes for higher education have also been established. Literacy rate in Nagaland according to 2011 census is 80.11% which is a giant leap as compared to the 1991 (61.65%) and 2001 census (67.11) .Nagaland University is a Central University established by an Act of Parliament No. 35 of 1989 for Higher Education in the state. The university became functional on the 6th of September, 1994.

1.3 COLLECTIVE ANALYSIS ENVIRONMENTAL ATTITUDE IN NAGALAND

An attitude is an expression of favor or disfavor toward a person, place, thing, or event (the attitude object). Most contemporary perspectives on attitudes also permit that people can also be conflicted or ambivalent toward an object by simultaneously holding both positive and negative attitudes toward the same object. This has led to some discussions of whether an individual can hold multiple attitudes toward the same object. One of the underlying assumptions about the link between attitudes and behavior is that of consistency. This means that we often or usually expect the behavior of a person to be consistent with the attitudes that they hold. Daniel Katz (1960) outlines four functional areas:

i. Knowledge function- Attitudes provide meaning (knowledge) for life. The knowledge function refers to our need for a world which is consistent and relatively stable. This allows us to predict what is likely to happen, and so gives us a sense of control. Attitudes can help us organize and structure our experience. Knowing a person's attitude helps us predict their behavior. For example, knowing that a person is religious we can predict that they will go to Church.

ii. Self / Ego-expressive function- We express to (a) help communicate who we are and (b) make us feel good because we have asserted our identity. Self-expression of attitudes can be non-verbal too like bumper sticker, cap, or T-shirt slogan. Therefore, our attitudes are part of our self identify, and helps us to be aware through the expression of our feelings, beliefs and values.

iii. Adaptive function- If a person holds and/or expresses socially acceptable attitudes, other people will reward them with approval and social acceptance. For example, when people flatter their bosses or instructors (and believe it) or keep silent if they think an attitude is unpopular. Again, expression can be nonverbal (like a politician kissing baby). Attitudes then, are to do with being apart of a social group and the adaptive functions helps us fit in with a social group. People seek out others who share their attitudes, and develop similar attitudes to those they like.

iv. The ego-defensive function- It refers to holding attitudes that protect our self-esteem or that justifies actions that make one feel guilty. For example, one way children might defend themselves against the feelings of humiliation they have experienced in physical education class is to adopt a strongly negative attitude to all sports. People

whose pride has suffered following a defeat in sport might similarly adopt a defensive attitude: “I’m not bothered, I’m sick of cricket anyway…” This function has psychiatric overtones. Positive attitudes towards ourselves, for example, have a protective function (i.e. an ego-defensive role) in helping us reserve our self-image.

The basic idea behind the functional approach is that attitudes help a person to mediate between their own inner needs (expression, defense) and the outside world (adaptive and knowledge).

Attitudes are related to self-image and social acceptance (i.e. attitude functions).In order to preserve a positive self-image, people’s responses may be affected by social desirability. They may not well tell about their true attitudes, but answer in a way that they feel socially acceptable.

Attitude can be measured in two different ways:

(i) Explicit measure/ direct measure – Explicit measure are attitudes measurement at the conscious level, that are deliberately formed and easy to self-report (eg; likert scale, semantic differential technique, etc).

(ii) (ii) Implicit measure/ Indirect measure - Implicit methods measure attitudes that are at an unconscious level, that are involuntarily formed and are typically unknown to us (eg; thematic apperception test, Rorschach’s inkblot test, draw a person task, etc).

Attitudes toward the environment and attitudes toward ecological behavior can be evaluated in terms of at least three components: factual knowledge about the environment, social and moral values regarding environment, social and moral values regarding environment and ecological behavior intention. The Theory of Reasoned Action (Fishbein & Azjen, 1975, 1980), as well as the Theory of Planned Behavior (Azjen, 1985), proposes that attitude influences behavior, mediated by intention. Factual knowledge can be seen as a precondition of any attitude and, thus, the relationship between factual knowledge and behaviour is mediated by intention as well. Moreover, subjective norms, or at least one’s values, are also mediated by intention and therefore predict behavior indirectly. Given these interrelations, research findings in the ecological domain fit together quite well. If environmental attitude is assessed by one single measure regardless of the type of environmental attitude, the usual

findings reveal either a moderate relationship between environmental attitude and ecological or a weak relationship.

1.4 COLLECTIVE ANALYSIS OF ENVIRONMENTAL EDUCATION AND AWARENESS IN NAGALAND

Awareness is the ability to perceive, to feel, or to be conscious of events, objects, thoughts, emotions, or sensory patterns. In this level of consciousness, sense data can be confirmed by an observer without necessarily implying understanding. More broadly, it is the state or quality of being aware of something. The 'Environmental Education Awareness' is enhancing the understanding of people at all levels about the relationship between human beings and the environment and to develop capabilities/skills to improve and protect the environment. To promote environmental awareness among all sections of the society and to mobilize people's participation for preservation and conservation of environment should be a primary concern.

Education and awareness programs need to be addressed to both the professional sector and the general public and should inform them about the direct and indirect impacts of tourism, the causes with his effects, the global and local issues, the immediate and long-term issues and good practices in the area. The private sector and especially tour operators could provide information more widely to their clients. - The tourists - about sustainable tourism issues, encourage them to conserve, avoid negative impacts on biodiversity and cultural heritage to respect national legislation of the visited area as well as traditions of local communities.

Education and awareness-raising also is required at all levels of the Government. This should include processes for increasing mutual understanding between relevant ministries, including joint and innovative approaches for dealing with tourism and environmental issues. It is very important to raise awareness within the academic sector responsible for training and research on issues regarding sustainable tourism.

The need to spread environmental awareness is enormous in the context of successfully addressing environmental problems. It is linked to environmental education.On the one hand,

provision of environmental education creates greater awareness in individuals and communities with respect to putting environmental resources to use even while conserving them. On the other hand, greater environmental awareness increases the scope of environmental education as a discipline as well as inclusion of aspects of it within the scope of other disciplines.

Various media and means are used to spread environmental awareness among the people. The electronic media and the print media are the major mediums of spreading information about environment among the populace educating them about environmental concerns and ways to address these. News, documentaries, talk shows and discussions on television and radio are increasingly focusing on environmental themes of today. Global warming, air and water pollution, over use of fertilizers, the negative implication of use of plastics and polythene, conservation of energy and fuel resources, are all topics of the current media debate. Newspapers and magazines too are, one may say, more environmentally conscious than ever before. Articles and analyses explore the environmental debacle that our earth is headed towards self destruction and create awareness in the common man about environmental problems.

Schools and universities can play enormously significant roles in generating environmental awareness amongst children and the youth. Textbooks reveal an increasing concern for environmental problems and solutions and numerous courses are available at the higher education levels that provide environmental education relating to management and conservation of environment, environmental health, and social ecology and so on.

The issue of environmental education has been a major cause of concern. Several national and international seminars, conferences and workshops have stressed the need of environmental education. The objective of such education is that individuals and social groups should become aware, acquire knowledge, and develop attitudes, skills and abilities to address real-life environmental problems. Integrated inter-disciplinary and holistic education is to be provided to all sections of the population. It would first of all require a new approach to education itself which cuts across different subjects in schools and universities.

The goals of environmental education as pointed out by the UNESCO are to create environmental awareness in the world population awareness about the whole environment and its problems associated with it and generate commitment in people to work individually and in unison towards solving existing problems and preventing new ones from emerging. The climate is changing. The earth is warming up, and there is now overwhelming scientific consensus that it is happening, and human-induced. With global warming on the increase and species and their habitats on the decrease, chances for ecosystems to adapt naturally are diminishing. Many have agreed that climate change may be one of the greatest threats facing the planet. Recent years show increasing temperatures in various regions, and/or increasing extremities in weather patterns.

1.5 GOVERNMENT INITIATIVES IN ORGANIZING ENVIRONMENTAL AWARENESS IN COLLEGE

1.5.1 Orientation Programmes for Eco- Club Schools under Dimapur

A total of 84 schools attended an orientation program organised for Eco-Club Schools under Dimapur Forest Division at Forest Office Complex, Dimapur. According to a press note, during the programme, the teachers representative of Eco-Clubs school were sensitised on the various environmental and ecological topics by the officers of the division.

Dr. Sentitula, IFS, Chumukedima Range In-charge discussed on the causes of present environmental problems while Tokaho, ACF Dimapur Range In-charge deals on the issue of natural disasters and the role that the Eco-clubs could undertake in such a scenario. The participants were also sensitised on the importance of wildlife by Range Officer Rangapahar, Khuhevi. The importance of tree plantation and documentation of traditional knowledge were highlighted by Nitokhu, Range Officer, Medziphema and Vivika, Range Officer, Niuland respectively. The participants also raised the importance of having documentation of all the Eco-club activities under Dimapur Division in order to exchange information and build a common platform between members and the Department.

The orientation Program was followed by sanctioning of token seed money of Rs.2500/- to each eco-club school provided by the Ministry of Environment & Forests. All the registered eco-club schools are requested to collect the token seed money within this month.

1.5.2 National Green Corps

National Green Corps is a major initiative of MOEFCC for creating environmental awareness launched in 2001-02 which aims at building cadres of young children working towards environmental conservation and sustainable development . The phenomenal response that NGC has received and has made the network more than 1,00,000 Eco clubs across the country in 14 years, making it one of the largest conservation networks indicates its importance at grass root level in taking the environment awareness at mass.

The unique partnership between the MOEF, the state Government agencies alongwith the dedicated NGOs, working in the field of Environmental Education has contributed to the success of the programme. It is operated through Eco-clubs set up in schools registered as members of NGC, this programme exposes school children to in-depth field experiences, and provides opportunities to convert their ideas into creative action.

The programme has a cascading effect, seeks to redirect the consciousness of students towards environment friendly attitudes and actions and goes beyond schools, promoting school-society interactions to sensitize the society. Also in order to strengthen monitoring mechanism of NGC programme, MOEFCC is in process to establish Management Information system (MIS) which will open up vistas in sharing and accessing the information on NGC among all stakeholders. The MIS reporting and monitoring would be interactive and creative in ensuring NGC mobility and services.

During financial year 2014-15, 92310 Eco-clubs were supported by the Ministry across the country. A suggestive list of activities has been communicated to State Nodal Agencies. Out of these some activities are identified for implementation by Eco - clubs. List of some of the suggested activities for Eco-Clubs are as follows:

1. Organize seminars, debates, lectures and popular talks on environmental issues in the school.
2. Organize field visits to environmentally important sites including polluted and degraded sites wildlife parks etc.
3. Organize rallies, marches, human chains and street theater at public places with a view to spread environmental awareness.
4. Take up activities like tree plantation, cleanliness drives both within and outside the school campus.
5. Grow kitchen garden, maintain vermin-composting pits, construct water-harvesting structures in school, practice paper re-cycling etc.
6. Prepare inventories of polluting sources and forward it to enforcement agencies.
7. Organize awareness programmes against defecation in public places, pasting posters in public places and to propagate personal hygiene habits like washing hands before meals etc.
8. To sensitize people about maintenance of public places like parks, gardens both within and outside the school campus.
9. Mobilize action against environmentally unsound practices like garbage disposal in unauthorized places, unsafe disposal of hospital waste etc.
10. Undertake case studies, compile lists of environmentally friendly products and community initiatives which have impacted the environment.
11. Create database on land use pattern, species diversity, medicinal plants, etc. to help planned conservation efforts.
12. Test soil, water and air quality and study their impact on health.
13. Learn to make natural dyes and herbal cosmetic.
14. Volunteer to help or guide visitors in Zoos, Botanical Gardens, National Parks and Public Gardens.
15. Start and maintain a small orchidarium, seed bank, arboretum, etc. in school.

Demonstrate/promote eco-friendly practices like non-chemical pest management, stall-feeding of animals to protect pastureland from over-grazing, use of energy- efficient devices or use of renewable energy for meeting local needs.

1.5.3 Northeast NSS Youth Festival at Kohima

The inaugural program of the North East NSS (National Service Scheme) Youth Festival 2016 was held on the second day at the Indira Gandhi Stadium, Kohima. Chief Secretary, Nagaland, Shri. Pankaj Kumar, IAS graced the inaugural program as the Chief Guest. Organized by the National Service Scheme (NSS) under the Department of Youth Resources & Sports, Nagaland in collaboration with the Ministry of Youth Affairs and Sports, Government of India, the festival was scheduled from March 1 to 5. 2016.

In general it creates an opportunity for the youth of North East to experience them, learn new things and it also gives the opportunity to communicate with each other and to know their cultures, he added. Regional Director, NSS North East Region, Guwahati, Sunil Kumar Basumatary, while delivering the keynote address stated that the main objective of this festival is to give more and more exposure to the youth with an opportunity to travel around the States and different people getting to know each other.

He said the NSS in the past 3 years has been able to organize 11 festivals in all the North East States. At present there are 7,400 NSS volunteers in the North East, he added. The NSS in North East is going very strong with their performances and participations which are excellent and should continue and maintain it, he stated. He said the 5 days festival contain academic session, cultural program, field visits etc.

The program was chaired by Sungjemmongla Jamir while Pete Z. Krose, Vice Principal, Kohima Bible College, Kohima invoked God's blessing at the service. The welcome address was given by C.Theyo, State NSS Officer while Don Bosco College, Kohima presented the NSS theme song. It included a special number by Khrüküdülü Swüro and a special appearance was made by Christina Lalruatpuii.

1.6 PUBLIC ENVIRONMENTAL AWARENESS IN NAGALAND

Public Environmental Awareness and Education Action can be taken in a variety of areas to increase environmental awareness and education. Some of these categories are: environmental legal rights and responsibilities and associated consequences, use of the media, awareness raising campaigns, incorporation of environmental issues in mainstream education, increasing awareness and education in target groups and encouragement of public participation in environmental matters. As the following case studies illustrate, many sectors of society are involved in developing and delivering educational courses and public awareness campaigns. These include Governmental institutions at the national, regional, and local levels; domestic and international NGOs; primary, secondary, and post-secondary schools; journalists and the media; celebrities; and other individuals and institutions. Moreover, educational and awareness efforts can target practically any sector of society. They can seek to raise public awareness broadly on environmental issues (e.g., through the media) or they may be a targeted campaign or educational effort focused on a specific sector (or target audience) on a specific issue. Funding for awareness and education initiatives may come from a variety of sources. Often, it comes from the budgets of specific agencies or Ministries; it is uncommon for such initiatives to receive funding directly from the central budget. Some States have accessed their national Environment Funds to provide partial funding for environmental awareness and education.

Environmental education and awareness rising can include any of the following types of activities: Reorienting current education and awareness programs to include environmental dimensions; Basic education and awareness programs (e.g., in schools); Adult and community education and awareness programs; and education, training, and awareness programs for professional, technical, and vocational personnel.

The print, broadcast, and Internet media can be a powerful ally in educating the public on environmental matters. In order to perform this role effectively, it is often necessary for the Government to work with the media (and sometimes educate the media). This is often done informally, through regular briefings and information centre. Some States have found that educating the media can be quite effective in building capacity to report on environmental matters. The case study from Bulgaria is but one example of how the Government has

worked closely with the mass media to build its environmental reporting capacity through regular press conferences and large public awareness campaigns. Capacity building efforts can provide journalists with basic environmental information on a specific topic or general environmental information.

The link between environmental law and social responsibility in the context of enforcement can best be illustrated through environmental education and public awareness initiatives. Public awareness and participation is important in all aspects of enforcement, not only in understanding basic environment and human rights, but also in fostering a sense of responsibility and proactive environmental citizenship. The following examples focus on raising environmental awareness, public participation, and environmental rights. Celebrities in Media Campaigns as in any advertisement or public awareness campaign, the involvement of people that are well-known and respected public figures and effective use of the media can be a potent way of increasing understanding of the importance of environmental issues and enforcement. Newspapers, television, radio, magazines, and other media can be used to quickly reach a large number of people.

Educational Campaigns for Public Involvement in Compliance Monitoring An educated public can be one of the most powerful weapons in the world's battle against harm to the environment. The ways that the public can assist in enforcement efforts are as numerous as the potential approaches for increasing public awareness.

Table: 1.6.1

Environmental and Social Issues

Amendment	Objective
Environment Protection Act-1986.	To protect the environment as a growing concern over deterioration state of the environment.
AIR (Prevention and Control of Pollution) Act-1981.	To take appropriate steps for the preservation of the natural resources of the earth. The preservation of high quality air and ensures controlling the level of air pollution.

WATER (Prevention and Control of Pollution) Act- 1974.	To provide for prevention, control and abatement of water pollution and the maintenances or resolution of the whole some of water
Wildlife Protection Act-1972.	To prohibits hunting of all animals and protection of extinction and ensure the protection of the ecosystem.
Forest Conservation Act-1927.	To give the government and forest department the power to create reserved forest and protects forest resources by the village community.

Table: 1.6.2

World Environment Calendar

Month	Date	Significance
February	2	World Wetland Day
March	21	World Forest Day
April	7	World Health Day
April	18	World Heritage Day
April	22	Earth Day
June	5	World Environment Day
June	11	World population Day
August	6	Hiroshima Day
September	16	World Ozone Day
September	28	Green Consumer Day
October	1-7	Wildlife Week
December	1	World AIDS Day

1.7 ENVIRONMENTAL PROBLEMS IN NAGALAND

Global warming has become an undisputed fact about our current livelihood. Our planet is warming up and it is definitely part of the problem. Our world is poised at the brink of a severe environmental crisis. Environmental problems make it vulnerable to disasters and tragedies in the present times and in the future as well. Environmental problems are piling up

high around us. Unless the various issues are addressed prudently and seriously, it will lead to disaster. Environmental problems require urgent attention. The followings were some major environmental problems.

1.7.1 Pollution: Pollution of air, water and soil require millions of years to recoup. Industry and motor vehicle exhaust are the number one pollutants. Heavy metals, nitrates and plastic are toxins responsible for pollution.

1.7.2 Global Warming: Climate changes like global warming is the result of human practices like emission of greenhouse gases. Global warming leads to rising temperatures of the ocean rise in sea level and unnatural patterns of precipitation such as flash floods, excessive snow or desertification.

1.7.3 Overpopulation: The population of the planet is reaching an unsustainable level as it faces shortage of resources like water, fuel and food. Overpopulation is one of the crucial environmental problem.

1.7.4 Natural Resource Depletion: Natural resource depletion is another crucial environmental problem. Fossil fuel consumption results in emission of greenhouse gases which is responsible for global warming and climate change.

1.7.5 Waste Disposal: The over consumption of resources and creation of plastics are creating a global crisis of waste disposal. Plastic, fast food packaging and cheap electronic wastes threaten the well being of humans. Waste disposal is one of the urgent environmental problems.

1.7.6 Climate Change: Climate change is yet another environmental problem that has surfaced in the last couple of decades. Change in seasons, occurrence of new diseases, frequent occurrence of floods, and change in overall weather scenario is a threatening environmental concern.

1.7.7 Loss of Biodiversity: Human activity is leading to the extinction of species and habitat and loss of bio-diversity. Eco systems, which took millions of years to perfect, are in danger

when any species population is decimating. Balanced of natural process like pollination is crucial to the survival of the eco-system and human activity threatens the same.

1.7.8 Deforestation: Our forests are natural sinks of carbon dioxide and produce fresh oxygen as well as helps in regulating temperature and rainfall. Through deforestation, there has been a clearing of green cover to make land available for residential, industrial and commercial purpose.

1.7.9. Acid Rain: Acid rain occurs due to the presence of certain pollutants in the atmosphere. Acid rain can be caused due to combustion of fossil fuels or erupting volcanoes or rotting vegetation which release sulfur dioxide and nitrogen oxides into the atmosphere. Acid rain is known environmental problem that can have serious effect on human health, wildlife and aquatic species.

1.7.10 Urban Sprawl: Urban sprawl refers to migration of population from high density urban areas to low density rural areas which result in spreading of city over more and more rural land. Urban sprawl results in land degradation, increase traffic, environmental issues and health issues. The ever growing demand of land displaces natural environment consisting of flora and fauna.

1.7.11 Public Health Issues: The environmental problems pose a lot of risk to the health of human and animals. Dirty water is the biggest health rick of the world and poses threat to the quality of life and public health. Run-off rivers carries along toxins, chemicals, and disease borne organisms. Pollutants cause respiratory disease like asthma and cardiac-vascular problems. High temperatures encourage the spread of infectious diseases like dengue.

The need of time is our daily lives and the initiation from the government is growing. If humans continue moving forward in such a harmful way towards the future, then there will be no future to consider. By raising awareness in our local community and within our families about environmental issues, it can help to contribute more environmentally conscious and friendly place to live.

1.8 NEEDS AND IMPORTANCE

We need to raise good stewards of the environment to care for issues like resource depletion, environmental pollution, land degradation, and accelerating species extinctions. Conservation efforts will accelerate if we can better educate the children about their connection to the nature and their dependency on it. The spiritual connection to the Earth will teach children that they are a part of nature and must take care of both their surroundings and other people. Environmental education increases public awareness and knowledge about environmental issues or problems. In doing so, it provides the public with the necessary skills to make informed decisions and take responsible action.

Environmental education provides the learners with capability and skills over time to analyze environmental issues, engage in problem solving, and take action to sustain and improve the environment. As a result, individuals are more capable of weighing various sides of an environmental issue to make informed and responsible decisions. Environmental education programs provide many benefits to students. The components of environmental education are:

i. Awareness and sensitivity to the environment and environmental challenges.
ii. Understanding the environmental challenges.

Environmental education programs provide many benefits to students. Environmental education program areas include: Water, sanitation and hygiene, sustainable use of biodiversity, environmental governance and natural resource conflict management. We also focus on training programs for climate change and sustainable energy options, waster reduction management and disaster prevention.

Our earth is the most precious gift of the universe. It is the sustenance of ‘nature’ that is the key to the development of the future of mankind. It is the duty and responsibility of each one of us to protect the nature. It is here that the understanding of the ‘environment’ comes into the picture. The degradation of our environment is linked with the development process and the ignorance of people about retaining the ecological balance. Indeed, no citizen of the earth can afford to remain aloof from the issue related to the environment. It is therefore, essentially important that the study of the environment becomes an integral part of the education process. Environmental education increases public awareness and knowledge

about environmental issues or problems. In doing so, it provides the public with the necessary skills to make informed decisions and take responsible actions.

Our earth's natural resources are rapidly dwindling and our environment is being increasingly degraded by human activities, it is evident that something needs to be done. We often feel that managing all this something that the government should do. But if go on endangering our environment, there, is no ways in which the government can perform all these clean up function. It is the prevention of environmental degradation that must become a part of all our lives. Protecting our environment is economically more viable than cleaning it up once it is damaged.

As individual we can play a major role in the environment management, about sources that lead to pollution and degradation of environment. It can be made possible through public awareness, mass media such as newspaper, radio, television and strong public opinion. However, someone has to bring this about. If each one feels strong about the environment, the press and media will add our efforts. Politicians in a democracy always respond positively to a strong public supported movement. Thus, if we join any Non-Governmental Organization (NGO) that supports conservation, we might be able to influence politicians to make 'Green Policies'. We are living in a planet with limited supply of resources. Each one of us is responsible for spreading this message to as many people as possible.

Environment is not a single subject. It is an integration of several subjects that include both science and social studies. To understand all the different aspects of our environment, we need to understand biology, chemistry, physics, geography, resource management, economics and population issues. Thus, the study of environmental studies is extremely wide and covers of nearly all major disciplines.

We live in a world where our natural resources are limited. Water, air, soil, minerals, oil, and the products we get from forest, grasslands, oceans, and from agriculture and livestock's are all a part of our life support system. Without them life itself would be impossible. As we keep increasing in numbers and the quantity of resources each of us uses also increase. The earth's resources base must inevitably shrink. The earth cannot be expected to indefinitely sustain this expanding level of utilization of resources. Added to this is the misuse of

resources. We waste or pollute large amount of nature's clean water. We create more materials like plastic that we discard after a single use, and we waste colossal amount of food, which is discarded as garbage. Manufacturing processes create soil waste byproducts that are discarded, as well as chemical that flow out as liquid waste and pollute water and gases This pollutes the air. Natural processes cannot manage the increasing amount of wastes. The accumulated wastes in our environment lead to a variety of diseases and other adverse environmental issues. Air pollution leads to respiratory diseases, water pollution to gastro-intestinal diseases and many pollutants are known to cause cancer.

Environmental situation will improve only if each one of us begins to take action in our daily lives that will help preserve our environmental resources. We cannot expect from the government alone to manage and safeguarding of the environment, nor can us aspect other people to prevent the environmental damages. We need to do it ourselves. It is a responsibility that each one of us must take on as one's own.

Need and importance of the environmental study cannot be disputed. The need for sustainable development is a key to the future of mankind. The degradation of our environment is linked to the continuing problems of pollution, loss of forest, solid waste disposal and issues related to economic productivity and material as well as ecological security. The increasing levels of global warming, the depletion of the ozone layer and a serious loss of biodiversity have also made everyone aware of the environmental concerns.

The United Nation Conference on Environment and Development held in Rio-de-Janeiro in 1992 and the World Summit on sustainable development and development at Zoharbex in 2002 have drawn the attention of the world that the mankind cannot afford to be ignorant of environmental issues. Environmental Management has become a part of health care sector. Managing environmental hazards and preventing possible disasters has become an urgent need. Human's beings have been interested in ecology since the beginning of civilization. Even our ancient scriptures have included practices and values related to environmental conservation. It is even more critical than even before for mankind as a whole to have a clear understanding of environmental concerns and to follow sustainable developmental practices.

Environmental education refers to organized efforts to teach how natural environment functions, and particularly, how human beings can manage behavior and ecosystems to live sustainably. It is a multi-disciplinary field integrating disciplines such as biology, chemistry, physics, ecology, earth science, atmospheric science, mathematics, and geography. The term often implies education within the school system, from primary to post-secondary. However, it sometimes includes all efforts to educate the public and other audiences, including print materials, websites, media campaigns, etc.

Environmental Education is the teaching of individuals, and communities, in transitioning to a society that is knowledgeable of the environment and its associated problems, aware of the solutions to these problems, and motivated to solve them. The United Nations Educational, Scientific and Cultural Organization (UNESCO) states that environmental education is vital in imparting an inherent respect for nature amongst society and in enhancing public environmental awareness. UNESCO emphasizes the role of environmental education in safeguarding future global developments of societal quality of life, through the protection of the environment, eradication of poverty, minimization of inequalities and insurance of sustainable development.

Despite the deteriorating status of the environment, its formal has so far not received adequate attention in our academic domain. Recognizing this need, the Supreme Court of India directed the University Grant Commission (UGC) to introduce a basic course on environment for every student. Accordingly, the matter was considered by the UGC and it was decided that a six month compulsory care module course on environmental education might be prepared and compulsorily implemented in all the universities/colleges in India. The educational approach developed in building a sustainable future should therefore entail more than developing personal attributes to deal with immediate environmental challenges. It should also seek to arm individuals and communities with the means to critically examine and influence the social structures that fundamentally affect their lives.

1.9 STATEMENT OF THE PROBLEM

Statement of the problem is stated as**, A Study of Environmental Education, Attitude And Awareness Among The Students Of Higher Education In Nagaland.**

1.9.1 DEFINITION OF THE TERMS USED

The operational definitions of the terms use are as follows:

a. **Environment:** The natural world, the surrounding or conditions in which a person, animal, or plant lives and operates.

b. **Education:** The process of teaching and learning, the theory and practice of teaching or training in a particular subject.

c. **Attitude:** A way of thinking as feeling about someone or something self – confident or hostile behavior.

d. **Awareness**: Having knowledge of a situation or fact.

e. **Student:** A person studying at a school or college, a person who takes a particular interest in a subject.

f. **Program:** A planned series of events , a set of related measures or activities with a long term aim.

g. **Policy:** A course of action adopted or proposed by an organization or a person.

1.10 HYPOTHESIS OF THE PRESENT STUDY

In the present study data were collected using interview schedules, questionnaires, attitude scale and awareness scale. The data were analyzed using descriptive and inferential statistics. The findings have been employed by the researcher to examine the present research hypothesis.

1. Students to be aware of the need to conserve bio-diversity and develop a more sustainable life style in using resources more equitability.

   i). For the present study, 25 head of the institutions and 30 teachers of higher education; 735 teachers from all the 11 districts of Nagaland were subjected with questionnaires and interview schedules. It provided the following evidences that supported the hypothesis:

   a. The study showed that all the colleges in the Study have environmental awareness as a compulsory and elective subject.

   b. The colleges are working towards creating environmental awareness and its conservation amongst the students. 60% of the colleges in the study conduct programs on environmental guidance and counseling for the students. However only 30% of the teachers participated in protection and preservation of forest and wild life.

   c. According to study, 90% of the teachers encourages the students to participate in various environmental activities like, cleanliness drive, mass social works, tree plantations, use re-usable materials, and buy eco-friendly products

   d. The study also revealed that 95% of the students observe World Environmental Day, 28% Cleanliness drives, 91% Mass social works, 41% Tree plantations, 77% Proper waste disposal, 93% Field study, and 65% attend environmental seminar and workshop.

e. The study also revealed that 92% of the students are aware of the importance of environmental education while 8% still need to know the important of environmental education. Developing positive attitude towards environmental awareness and preservation was found to be the most common reason for the development of such awareness.

ii) An environment awareness scale was developed for the purpose of the study. The scale was aimed at assessing the environmental awareness and knowledge about a more sustainable lifestyle among students.330 students from the population sample of the study participated. On a scale of 0 to 20, a mean average of 16.5 was calculated. It indicates an above average awareness amongst the students on environmental issues and its preservation.

One –way Anova was administered for inferential statistics to determine if there were any significant statistical differences amongst the students of the different districts in environmental awareness. The calculated F- ratio was 1.51 and at a significance level of 0.05, it was found that there were no significant differences (p=0.134) among the students from different districts in environmental awareness.

2. Students' attitude towards environment by relating with practical approach based on observation and self-learning in environmental activities like cleanliness drive, mass social work, mass tree plantation.

i. Interviews and questionnaires to 735 students from 12 colleges in 11 districts of Nagaland provided the following evidences that supported the hypothesis:

a. According to the study, the teachers responded that 80% of the students in the study show a positive attitude towards the subject of environmental education.
b. 95% of the students in the study was found to observe the World Environmental Day.
c. 28% of the students in the study took part in cleanliness drives.
d. 91% of the students in the study were involved in mass social works.

e. 41% of the students took part in tree plantations.
f. 77% of the students in the study practiced proper waste disposal,
g. 93% of the students participated in field study.
h. 65% of the students took part in environmental seminars and workshops.
i. 52% of the students in the study took part in environmental conservation.
j. 48% of the students bought environmentally friendly products.

ii. The administration of an environmental attitude scale to 330 students of the study population provided a mean score of 90.5 out of a total possible score of 110 and an average score of 55. The mean score of the study sample is indicative of a high attitude towards environmental issues and its conservation. One –way Anova was administered for inferential statistics to determine if there were any significant statistical differences amongst the students of the different districts in environmental attitude. The calculated F- ratio was 1.12 and at a significance level of 0.05 , it was found that there were no significant differences (p=0.346) among the students from different districts in environmental attitude.

3. To create an understanding the need and importance of environment and eco-system which bring changes to every living organism.

i).For the present study, 25 head of the institutions and 30 teachers of higher education; 735 teachers and 200 local community members from all the 11 districts of Nagaland were subjected with questionnaires and interview schedules. It provided the following evidences that supported the evidences:

a. The study showed that 84% of the students felt environmental education created awareness.
b. 84% of the students environmental education inculcated positive attitude towards environment,
c. 80% of the students reported to have developed a civic sense and responsibilities towards the environment.
d. 96% of the students felt that protection and preservation of forest and wild life are needed to have a balanced ecology.

e. The study showed the percentages of teachers who suggested the different ways and means in solving environmental issue and problems: Saving water- 87%, Saving paper - 50%, Stop cutting tree - 87%, Proper disposal of dustbins - 94%, Stop burning forest -74%, and Reducing use of plastic- 94% .

f. The study showed the following steps that the local communities have steps taken up to protect forest and wild life in local areas : 71% putting up environmental sign board, 87% imposing fine to the environmental defaulter, 83% Rules and regulations were made on forest and wild life protection, 86% Prohibition of hunting, 90% Prohibition of burning forest, 81% Planting tree once the tree is cut down for firewood.

g. Percentage of college authorities that allowed students to participate in the following environmental activities according to the study are as follows; Mass social work - 100%, Mass cleanliness drive -96%, and Mass tree plantation - 80%.

ii). The administration of an environmental attitude scale to 330 students of the study population provided a mean score of 90.5 out of a total possible score of 110 and an average score of 55. The mean score of the study sample is indicative of a high attitude towards environmental issues and its conservation. One –way Anova was administered for inferential statistics to determine if there were any significant statistical differences amongst the students of the different districts in environmental attitude. The calculated F- ratio was 1.12 and at a significance level of 0.05 , it was found that there were no significant differences ($p=0.346$) among the students from different districts in environmental attitude.

iii) An environment awareness scale was developed for the purpose of the study. The scale was aimed at assessing the environmental awareness and knowledge about a more sustainable lifestyle among students.330 students from the population sample of the study participated. On a scale of 0 to 20, a mean average of 16.5 was calculated. It indicates an above average awareness amongst the students on environmental issues and its preservation.

One –way Anova was administered for inferential statistics to determine if there were any significant statistical differences amongst the students of the different districts in environmental awareness. The calculated F- ratio was 1.51 and at a significance level of 0.05, it was found that there were no significant differences (p=0.134) among the students from different districts in environmental awareness.

1.11 OBJECTIVES OF THE PRESENT STUDY

The objectives of the study were as follows;

i. To study the programs in Nagaland about environmental education.

ii. To study the effort of local community with regard to environmental education.

iii. To study the programs of environmental education offered by colleges.

iv. To study and compare the attitude of higher education students in Nagaland towards environment.

v. To assess and compare the awareness of the college students in Nagaland towards environment.

vi. To bring out suggestions for creating positive environmental attitude and awareness.

1.12 DELIMITATIONS OF THE PRESENT STUDY

The delimitations of the studies were as follows;

1. The study was confined to Nagaland Government and Private colleges numbering to 20 colleges.

2. The study covered principals/vice-principals, Teachers, Students and Local Community were actually involved for the study.

3. For the present study 25 Principals/Vice-Principals, 30 environmental education subject teachers, 735 Students and 200 Local Community were administered through questionnaires and interview. Beside this, 330 students were included to test their environmental attitude and awareness.

CHAPTER - II

REVIEW OF RELATED LITERATURE

2.1 INTRODUCTION

This chapter deals with the concepts and ideals that the investigator has used for the study by consulting literature and research finding on environmental education, attitude and awareness. The relevant research materials were use for review of related literature in the present study.

2.1.1 STUDIES CONDUCTED IN INDIA

The following were the studies conducted in India;

Indera P. Singh and Tiwari, S.C., 1980. *Man and his Environment*. The Man and environment relationship makes a fascinating area of study. This is so because of man's unique ability to exist in a variety of eco system as well as to adapt him to varying external condition. The environment in which man exists, and to which he adapts himself and he also moulds includes not only the physical aspect but also the socio-cultural and biological aspects. The man-environment relationship is never constant and there are many factors which are responsible for shifts in this relationship. Changes in the members in mankind, growth or decline and the movement of person from one place to another produce constantly shifting relationships between man and the environment. This result changes on the one hand and changes in the structure, as well as the genetic and socio-cultural characteristics of population on the other. Apart from genetic and biological responses to different environmental condition, man as a cultural animal has with the use of technology, manipulated the environment in order to satisfy his desires and needs. Man interactions with his environment have been undergoing change and adaption continuously in many parts of the world. Thus, culture has made man mechanism of adaption even more specialized than psychological tools.

Ganguli, D., Vashishtha, U.C.V., 1980. *A Trend Report Environmental Educational Research in Science Education*. The study of environment by researchers in science education is quite a late phenomenon in the history of Indian education. Study related to

environment falling two categories. For some, environment has relevance as the approached to learning. While for other, it is important for its content as a subject of itself. The first study in this line was done by Escemmal (1980) when teaching through different models, the environmental approach was tested for its efficacy. The results were very encouraging. The environmental approach was found to be superior to the formal approach. Beside this unique finding was that the students of rural and low SES groups were significantly better in forfeiting from such instruction than their counter parts in urban areas and coming from high SES.

Das, B.C., 1980. *Population, Food, Energy, Environment, Science and Technology. A hopeful strategy for reduction of poverty*. Development through science and technology, commensurate with environmental resources is an ideal goal for all societies. Development is a fairly comprehensive concept and stands for industrial, agricultural, and economic growth. Development means not only growth; it covers a broad spectrum of people's education, health, nutrition, organization, discipline and honest labor.
Population, food, energy, environment, science and technology are interdependent in these areas and the incompatibility of limitless growth is proving to be an important subject of analysis. Past experience, present condition and feature prospects in the field of energy. Environment, population, organization and food should be carefully analyzed before adopting or embracing a plan of development.

We must differentiate between science and technology. The aim of science is to understand nature and related thing. The aim of technology is to produce goods and services to meet present and potential human needs. Science is universal and is judged by its penetration in to the mysteries of nature. Technology is culture is specific and is judge by its contribution to the society.

Ghose, GauriRani, 1988.*Know the plants around you. Independent study*. It is an attempt to advocate not to stuff the mind of the children with facts and information, but to sharpen their senses to enable them to observe their environment and to enrich their experience. Development of a handbook of plants, containing stories and myths associated with the plants, information about the usefulness of the plants. Seventy common plants associated

with everyday life were selected and listed and a handy key to the families of these plants, with their floral diagrams was developed.

The report provided a list of 70 common plants with a standardized method of describing them in non-technical and semi-technical language. As examples, descriptions of Bael (Aegle Mamrmelos), Coconuts (Cocos Nucifera) and Nymphaea (Water Lily) were given as technical aids, so herbarium sheets were prepared [SRA1118].

Khattar, N., 1988. *Systematic studies of fauna in and around Bhubaneswar for development of a museum*. The study attempts to develop a systematic account and a museum of the fauna of the local area and surrounding. To make the students and teachers curious to know and collect the fauna of their immediate environment and to help them find out what animals exist in their surrounding and how these differ in different localities.A thorough survey was conducted to collect the fauna from their territorial, fresh water, barkish-water, and marine environs. Different types of sampling methods were employed in different environs. The identification and classification of different animals collected under the project was done and lists were prepared to identify specimens from different groups such as Porifera, Coelenterata, Helminthus, Arthropoda,(Arthropoda- insects and butterflies) and the different families of fish , reptiles, birds, mammals etc. [SRA1115].

Sharma, Munishwar kumar, 1990. A *study of scientific literacy, attitudes towards science and personality traits of students and teachers.* This study investigates the of science literacy, attitudes towards science and personality traits of certain groups of students and teachers. The objectives of the study were to study the level of scientific literacy of different groups of students and teachers, to study attitudes of science of different groups of students and teachers, to study personality traits of students and teachers.

The study sample comprised science students and teachers. The tools used in the study included scientific literacy scale, attitudes to science scale and cattells 16 personality factors questionnaire. The total had higher level of scientific literacy than theoretical mean. There was significant difference between the general group and the ST/SC groups. The total sample had favorable attitude towards science. There was no Significant difference between students and teachers personality factors.[JKSO696]

Shahmawaj, 1990.*Environmental awareness and environmental attitude of secondary and higher secondary school teachers and students towards the environment.* This study address issues related to the awareness and attitudes of teachers and students towards the environment. To determine the extent of awareness about the environment among the students and teachers, to find out the attitude of teachers towards the environment, and To find out the differences between teachers and students and male and female groups concerning the environment. The study was conducted mainly through a survey and the application of a tool developed by the investigator to test attitudes and awareness. It was found that 95 teachers and 945 students possessed positive environmental attitudes. The environmental trained teachers and trained teachers did not differ in their attitudes. Girls possessed significantly more awareness of environment than boys.[JKSO698].

Kidwari, Zeenat, 1991. *Development of an environmentally – oriented curriculum in Geography at secondary Stage*. This study addresses the problem of environmental education for protection and conservation of the environment the objectives of this study were: to involve an integrated environmental education and bring about an overall awareness among younger generation about environmental education, to developed active and well informed individual for protecting and conserving environment, to develop in individual and communities skills for identifying and solving environment problems. Development of the geography and curriculum has been attempted on the ecosystem concept, dividing the environmental components into\lithosphere, hydrosphere and biota (Including the human population). A frame work for an environmentally oriental geography curriculum at secondary stage was presented. [MPRISO9]

Phaharaj, B., 1991. *Environmental knowledge, environmental attitude and protection regarding environmental education among pre-service and in-service secondary school teachers*. This study attempts to explore the level of environmental knowledge, attitude and its perception among pre-service and in- service secondary school teachers. To find out the level of environmental knowledge and attitude of pre-service and in- service secondary school teachers and to study their perception regarding environmental education in the secondary school. The level of environmental knowledge was found low among pre-service

teachers although conceptual knowledge was moderate. Among the in-service teachers environmental knowledge is moderate and factual knowledge about environment was low. Teachers perceived that environmental education could be core part of social science subjects in secondary school as well as mass media have a potential role to play in interpreting environmental education. [MSYO929].

Gopal Khrishnan, Sarojini, 1992.*Impact of Environmental Education on Primary School Children.* The study addresses the problems of environmental education and its impact on primary school children of standard – v selected at random schools of the Nilgiris, Madras and Coimbatore. The objectives were: To identify the important factors of the environment, to assess the impact of environmental education test. To find out through a small experimental study, the impact of the participatory learning approach. The distribution of the total environmental education scores of the entire sample approached the normal form which implies that studying environmental education had a very good impact on the children. The study showed that the participatory learning approach could bring about a better impact. Teachers, in general, felt that there was not sufficient time to give importance to learner-centered activities. (MCISST)

Sahoo, K.C., 1992.*A critical study of the conception and perception of environment education.* There is a lack of understanding about the constituents of the environment and their relationship with man. The present study attempts to renovate the concept of environmental education. The objectives of this study were to: To study the concept and constituents of environment, to study environment-man relationship, to study the dynamics of the environment, to renovate the concept of environmental education. The concept of the environment is broadly divided as natural and man-made types. Flora and fauna constitute the biotic environment. The atmosphere, hydrosphere constitutes the biotic environment. Man-made environment are of different types, such as social, economic, political, cultural aesthetic, historical geography, psychological, religious and academic. Several workshops, committee and bodies at national and international levels have thrown light on the conceptual analysis of environmental education. Environmental education is a broad concept and is perceived as life- long experienced for all. [PKSO645]

Agrawal, S.P., Agrawal, J.C., Prithvish Nag, 1996. *Environment Protection and Policies in India*. The problems encountered in the field of environment in India arise on account of poverty and under- development. Developmental activities lost sight of environmental and ecological imperatives. The damage done to the environment due to the growth in population and developmental activities, calls for urgent remedial measures. Environmental management is now accepted as a major guiding factor for national development in India. Over the last decade there has been a progressive strengthening of official involvement in environmental management with increased scientific, technical, administrative, and legislative back-up at the central and state levels. In the beginning of fourth plan, problems related to environment received the government attention. A committee on environmental coordination was setup in 1972 to look into the problems and suggest solution in consultation with the experts and concerned ministries /department of the government.

Aggrawal, S.P., Aggrawal, J.C., 1996,*Climate Change and Environmental Issues*. The whole issue of climate change is centered on the generally expected global warming which has been confirmed by the intergovernmental panel on climate change (IPCC) in its final report, published in august 1990. This predicted that without actions to reduce emissions, global warming will reach $2\text{-}5^0$ C over the next century, a rate of change unprecedented in the past 10,000 years. The reason for this warming is the build-up of certain gases in the atmosphere which form a blanket around the earth, trapping much of the radiation from the earth which would otherwise escape into space. This is known as the Green House effect, and the gases are referred to as green house gases.

In context of climate change, carbon dioxide (CO_2) is the most important of the green house gases, the other been chlorofluorocarbons (CFC_5), methane, nitrous oxide and ozone. Carbon dioxide occurs naturally and is vital to life processes. It is absorbed by green plants and converted into carbohydrate by photosynthesis and it is release during the process of natural decay and by burning. The amount of carbon dioxide in the atmosphere has been increasing mainly due to industrialization and the burning of coal, oil and gas (fossil fuels).

Agrawal, S.P., Aggrawal, J.C., 1996, Indian Institutional base for environmental education, (selected profiles), Centre for environment education, Ahmedabad, 380054, India. The

Centre for Environment Education (CEE) is a National Institute supported by the Department of Environment, Forests and Wildlife Government of India. At the national level its functions are: to help national net works for environmental education and to work with the existing net works both for the purpose of development and trial which can be a simultaneous process, to use both modern and traditional media and to experiment with innovative communication ideas for the promotion of environmental awareness, to develop educational material intended for widespread use in a way in which the user can adopt it to particular situations. In this sense, to develop the material more in the form of a tool rather than a finished product and to use existing situations and develop interpretive program around them. Fresh water is in the form of permanent ice and deep underground water which is at present un-exploitable. So the amount available for human use is even more limited. The process of converting sea water to fresh water by desalination is used by some countries, but it is expensive and only really practicable where there are large supplies of cheap energy.

Agrawal, S.P., Aggrawal, J.C., 1996, *Environmental Awareness and Status*. Awareness of the physical environment is not, by any means, something recent. Man, ever since he appeared on earth, became a part of his environs. Primitive man, when he had time to look around, observed nature in all her pristine beauty, splendor made him joyous and mystery kindled awe and curiosity. This is how the wonderful synthesis of the physical world with the individual soul began.

The environment includes animals and plants and their ecological systems which are closely bound to the livelihood of people. Whatever is present around the living beings and above the land, on the surface of the earth and under the earth is environment in its broader sense. Environment covers all outside factors that have acted on the individual since life began life. Better life is dependent upon both the types of environment, i.e., natural (physical) as well as social environment. While natural environment is generally emphasized, social environment in life is not adequately stressed. Social environment also concerned with clean administration and clean politics. True education can play an important role in promoting higher values of life, but task does not seem to be an easy one when there is all round deterioration of moral standards. The need of the hour is that leaders and specially those who hold power should set good example.

Agrawal, S.P., Aggarwal, J.C., 1996. *Environment and Forests in India*. The ministry of environment and forests serves as the focal point in the administrative structure of the Central government for planning, promotion and co-ordination of environmental and forestry programs.The main activities include protection of environment, prevention and control of pollutions; conservation and survey of flora, fauna, forests and wildlife; and afforestation and regeneration of degraded areas.These tasks are being fulfilled through environmental impact assessment; eco-regeneration; assistance to organizations implementations environmental and forestry research, extension, education and training to argument the requisite manpower; dissemination of environmental information; international co-operation and creation of environmental awareness at national level.

Agwarwal, S.P., Aggawal, J.C., 1996. *Consumption Patterns, Environment and Sustainable Development.* The high rate of natural resource and energy consumption and waste generation in develop countries is rapidly becoming one of the most controversial topics in the current international development. Resource consumption and the associated pollution are at their highest levels ever worldwide. The issue of consumption raises three basic points relevant to environment and sustainable development; Consumption is a root cause of environmental damage worldwide; It highlights inequity between North and South in economic strength and resource availability; It reveals a worldwide failure to value and account for natural resources.

Excessive consumption of resources has a number of environmental consequences. It threatens biological diversity by causing species depletion and habitat degradation through over exploitation. Forests are felled and seas over fished because of consumer demands for timber, food, rubber, pharmaceutical and other items. In agriculture sector, use of too much fertilizer and too many pesticides destroy biodiversity and lead to pollution. The rise of the consumer society also affects local people and their traditions, compelling many to abandon their age-old way of living in favor of a more consumer-oriented life style.

2.1.2 STUDIES CONDUCTED IN ABROAD

The following are the studies conducted in abroad;

Kelly, Christine, M., 1996. *Understanding our sensitivity to the natural environment. An initial theory of the nature of environmental responsiveness*. This study explore the nature of environmental responsiveness (i,e, one's sensitivity or reply to the natural environment) by identifying the casual contributions individuals make to their personal environmental beliefs and responses which act as determinants of the nature of their environmental responsiveness. Data was gathered from participant enrolled in a master level elementary methods course using; reflective journals; electronic mail communications; tape recorded interviews; courses generated artifacts. As the participant define their environmental beliefs and responses as pro-or-anti environmental areas superficial or satisfactory; their ability and effort to address environmental issues ; their perceive control over changing that which they contributed to the causes of environmental values are formulated to match their personal self-concepts.

Kebey, Jason, 1996. *Effect of residence time and environmental properties on the bio-availability and extractability of organic compounds in soil*. Phenanthrene, Naphthalene and Trazine that had been previously added to sterile soil became progressively unavailable for uptake by earth warms and for mineralization by bacteria with persistence of compounds. The availability of 2,4-dichoro ophenoxyacetic acid the bacteria was similarly diminished with aging of the compound in soil.

These data suggest that bio-availability of persistent compounds in soil declines with time and that predictions of exposure that are based the total amount of chemical extracted from soil do not appropriately estimate exposure or risk to susceptible populations. The effect of environmental properties on extractability of atrazine decreased with melting and drying but mineralization must unaffected. Thus predictions of bio-availability to be consider the effects of these environmental variables.

Berkely, 1996. *Achieving Public Health goals at hazardous waste sites: uses and limitation of risk assessment in a community context, Kyle, Amy, Dale*. The Comprehensive Environment Response, Compensation and Liability Act authorized a federal hazardous

waste site assessment and clean up programs implement methods, while Agency for Toxic Substances and Disease Registry (ATSDR) uses a qualitative approach that integrated health outcome data and community health concerns.
Consideration of community health concerns did lead to identification of localized exposures that were significant in some communities consideration of health outcome data did not result in significant findings. Better co-ordination of site investigation of specialized exposures would improve the process.

Ahn, Hyung-ki, 1996. *Technological risk and the citizens movement towards environmental protection*. Application of collective action theories, this dissertation was designed to examine the nature of citizens response to the technological risk event and movement towards environmental protection objective of this study was to test collective action theories, (Example, Resources mobilization theory, relative deprivation theory, rational choice theory, and the theory of planned behavior) by examining causal association between variables suggested in the literature. The other objective was to integrate a broad array of concepts and variables relevant to attitudes and behaviors in casual context in order to stimulate academic progress in this area.

Finding sheds light on the future studies of collective activism with respect of environmental problems. Researchers should employed multi-disciplinary approaches to kook at casual relationships among variables[1]. Policy makers dealing with environmental problems should be able to address psychological demographic and structural concerns. Environmental policies should be flexible and understood as ongoing process. This provides residents opportunities to participate in the policy process, eliciting public support.

James, E., 1996. An *assessment of attitudes, knowledge and beliefs of global warming. A comparison between twelfth grade students in Lansing, Michigan and Valdosta, Georgia, Fason.*The purpose of this study was to compare environmental attitudes, knowledge and belief held by two regional separated populations. More specifically, the objectives of the study were; to study assess the attitudes twelfth grade students hold towards environmental issues; to assess how much knowledgeable twelfth grade students are about global warming.

The quantitative and qualitative data of this study also found the respondents to lack of knowledge of general issues and global warming. The finding of the study have implications for environmental education, students, secondary school teachers, parents and decision makers.

Agrawal, S.P., Aggarawal, J.C., 1996. *United Nations Environment Program*. United Nation Environment Program (UNEP), as the environment conscience of the UN, conceived at the 1972, Stockholm conference and created at the same year, has its primary function to motivate and inspire, to raise level of environmental action and awareness at all levels of society worldwide. It co-ordinates the environmental activities of all the UN agencies and works to win the cooperation and participation of governments; the international scientific and professional communities and non-government organizations.

UNEP activities include a program of global environment quality monitoring, an environmental management action plan and support measures comprising environmental law, public information and education and training. UNEP remarkable international services-including the Global Environment Monitoring System(GEMS), the International Register of Potentially Toxic Chemicals (IRPTC), and the Worldwide

Information Network of Infoterra – provide both the international community and individual countries and organizations with the vital information they need to decide on action. GEMS furnishes a rigorous scientific basis for environmental management by providing reliable information from its Global Monitoring Networks by catalyzing new stations and vital areas of environmental including climate and atmosphere oceans, terrestrial renewable resources, trans boundary, pollution and the health consequences of pollution. There are GEMS activities in 142 countries.

Agarwal, S.P., Aggrawal, J.C., 1996. *International concern for Environment*. A review on the world political map of environment was first put in the shape of the Stockholm UN Conference on the human environment, an outcome of which was the setting up of the UN environment program (UNEP), other include Food and Agriculture Organization (FAO), such has committees on environment- related issues such as raw materials, agriculture and food security.

The International Labor Offices (ILO) works for protection and improvement of the working environment which is an integral part of the human environment. UNESCO has an interdisciplinary research program. 'Man and the biosphere', which despite its sexist title has quite a wide reach in the field of environment education. The UN General Assembly has held a number of Thematic Conferences and adopted a wide range of resolutions on environmental issues. These include resolution on energy, deforestation and international co-operation in the field of environment. More recently, resolution on protection of the ozone layer and traffic in toxic waste have been adopted.

David, Micheal Dean, 1997. *Industrial Organophosphates: Soil extraction accelerated hydrolysis and environmental presence.* As a class of chemicals, organophosphate estrus (OP_S) are of great environmental importance due to their wide spread agriculture and industrial use and release. The vast majority of the environmental fate and analytical method development studies published for DP_S have concentrated on the pesticides of this chemical class, primarily due to their activity as acetyl cholinesterase inhibitors. Their presence in the environment therefore, represents an uncharacterized threat to ecological and human health. The studies in this dissertation represent development of several new analytical methods for TAP_S, including modern soil, extraction techniques, chromatographic methods and mass spectra. Also the first recorded study of the environmental distribution of these TAP_S at Air Force bases due to their release from flame-retardant hydrant hydraulic fluids is reported.

Kearney, Anne Regina, 1997. *Some Implication of cognitive maps theory for Environmental Problem Solving and Decision making*. A fundamental contention of this perspective is that cognitive maps influence how new information, problems and situations are perceived, processed, and interpreted. Further, perceptions are assumed to both guide and limit problem solving and decision making behavior. In essence, the argument is that cognitive maps bias one's way of seeing which, in turn, is a powerful determinant of ours way of thinking and behavior.

The intent of this collection is; to offer a conceptual framework, bases on the cognitive map

concepts, for understanding environmental problem solving and decision making. To provide new methodology- the conceptual content cognitive maps (3CM) method for measuring and exploring people existing knowledge structure.

Franklin Edward Albert, 2000.*An evaluation of the California Forestry Institute for Teacher*. The purpose of this study was to evaluate the California Forestry Institute for teachers (FIT) environmental education workshop. As a result of attending FIT, number of outdoor activities increased number of environmentally related field trips increased and the number of lesson in cooperating environmental education topics participants were satisfied with structure of the workshop format and recommended on changes.

No significant differences were found in environmental attitudes between groups although females scored higher than males. No correlation was found between knowledge and attitudes assessment scores. Forest Institute for Teacher (FIT) Participants integrates Environmental Education (EE) into curriculum for a number of reasons.

Sikinyi, 2003. *The role of the bio sciences and biotechnology in agricultural education in the secondary school agriculture curriculum as perceived by agriculture educators*. The purpose of this study was to identify perception of agriculture teachers regarding the role of bio-science / bio-technology in the study of agriculture study sought to determine the degree to which teachers perceived the importance of infusing bio-science/bio-technology in the agriculture curriculum.

Findings indicated that secondary school educators in the North Central Region of the United State were mainly middle age and predominantly male. The instructors believed that by integrating the sciences into curriculum they could prepare their students better for feature employment opportunities in science and technology, which is as rapidly expanding industry.

CHAPTER – III
METHODOLOGY

3.1 INTRODUCTION

These chapters give the method and procedure adopted to obtain necessary data with reference to the objective of the study. The investigator will follow descriptive methods. These methods will describe and interpret concern with condition and relationship that exist, that prevail, attitude towards program that are going on. The study present will enable the investigator to discover effective ways of study on environmental education, attitude and awareness in the state of Nagaland.

3.2 POPULATION

The population of the present study comprised of Higher Education/Colleges of both private and government of eleven districts of Nagaland. The population represents the used of questionnaire and interviews schedule for the purpose of the study.

Table: 3.2.1

Population of the present study used in questionnaires and interview

Items	No. of Respondents
Head of the Institutions	25
Teachers	30
Students	735
Local Community	200

The table above show populations of the present study as follows; 25 (Twenty Five) Head of the Institutions, 30 (Thirty) Teachers, 735 (Seven Hundred Thirty Five) Students, and 200 (Two Hundred) Local Community. It encompasses all the 11 (eleven) Districts of the state of Nagaland.

The study of the population used for environmental attitude scale and environmental awareness scale for the purpose of the study.

Table: 3.2.2

List of colleges and number of student included in present study for attitude and awareness test

Category of college	Districts	Name of College	No. of Students	Total
Private	Kohima	Modern College	54	186
		Sazolie College	72	
	Peren	St.xavier College	10	
	Mokokchung	Tuli College	26	
	Dimapur	Public College of commerce	24	
Government	Phek	Pfiitsero College	37	144
	Kiphrie	Ziaji presidency College	15	
	Tuensang	Sao Chang college	20	
	Mon	Wangkhas College	20	
	Zunheboto	Zunheboto Government College	19	
	Longleng	Yinglie College	9	
	wokha	Mount Tiyi College	24	
Total	11 Districts	12 Colleges	330	330

The above table showed list of colleges and number of students include in the present study for attitude and awareness test are from 11 districts, 12 colleges of which 4 was private colleges and 7 was government colleges. The population of students was 330 of which 186 students are from private colleges and 144 students are from government colleges.

3.3 SAMPLE

The purposive samples are use for questionnaires and interview schedules the present study. Altogether 20 colleges were selected from eleven districts of Nagaland. The sample of the present study comprised of 25 Principals/Vice-Principals of which 21 male and 4 are questionnaires and interview out of which female, 30 Teachers of which 18 male and 12 are female, 735 Students were given q of which 380 male and 335 are female, 200 Localcommunity of which 100 male and 100 are female. Again another 330 students were

included for the present study to test students environmental attitude and environmental awareness.

Table: 3.3.1

List of Colleges used in the present study with questionnaires and interview

Districts	*Government College*	*Private College*	*Total*
Kohima	*2*	*3*	*5*
Dimapur	*1*	*2*	*3*
Mokokchung	*1*	*2*	*3*
Peren	1	1	2
Tuensang	1	0	1
Kiphire	1	0	1
Longleng	1	0	1
Zunheboto	1	0	1
Wokha	1	0	1
Mon	1	0	1
Phek	1	0	1
Total	12	8	20

Table above show eleven districts of Nagaland of which 12 (Twelve) government colleges and 8 (Eight) private colleges with a total of 20 colleges responded. It comprises of B.A., B.Sc., and B.Com. of higher education responded.

Table: 3.3.2

List of principal and vice-principal of the colleges used in questionnaires and interview

Name of the Institutions	Principal/ Vice-principal	Male/ Female	Educational Qualification	Districts	Government/ Private
Alder College	Principal	Male	M.A.	Kohima	Private
Dimapur Government College	Principal	Male	M.Com., M.Phil.	Dimapur	Government
Fagal Ali College	Principal	Male	M.Sc., M.Phil.	Mokokchung	Government
Immanuel College	Principal	Male	M.Sc., B.Ed.	Dimapur	Private
Kohima College	Principal	Female	M.A.	Kohima	Government
Kohima Science College	Principal	Male	M.Sc., Ph.D.	Kohima	Government
KORS College	Principal	Female	M.A.	Kohima	Private
Mount Tiyi College	Principal	Female	M.A., M.Phil.	Wokha	Government
Modern College	Principal	Male	M.Sc., B.Ed., Ph.D.	Kohima	Private
Public College of Commerce	Principal	Male	M.Com. Ph.D.	Dimapur	Private
People's College	Principal	Male	M.Com., B.Ed.	Mokokchung	Private
Pfiitsero College	Principal	Male	M.A., Ph.D.	Phek	Government
Peren Government College	Principal	Male	M.Sc., Ph.D.	Peren	Government
St.Xavier College	Principal	Male	M.A., B.Ed.	Peren	Private
Sao Chang College	Principal	Female	M.A., M.Phil.	Tuensang	Government
Tuli College	Principal	Male	M.A.	Mokokchung	Private
Wangkhas Collage	Principal	Male	M.A.	Mon	Government
Yingli College	Principal	Male	M.A., M.Phil., Ph.D.	Longleng	Government
Zunheboto Government College	Principal	Male	M.A., M.Phil.	Zunheboto	Government
Ziaji Presidency College	Principal	Male	M.A.	Kiphire	Government
Alder College	Vice Principal	Male	M.A.	Kohima	Private
Kohima Science College	Vice Principle	Male	M.Sc.	Kohima	Government
Peren Government College	Vice Principal	Male	M.A.	Peren	Government
St. Xavier College	Vice Principal	Male	M.A., B.Ed.	Peren	Private
Wagkheo College	Vice Principal	Male	M.A., Ph.D.	Mon	Government

Table above show the Profile of Principal and Vice-Principal of different Colleges as follows; The total responded is 25 of which male is 76 % and female is 24%. The education qualification of the respondents is M.A. 64%, M.Sc. 24%, M.Com. 12%, M.Phil. 16%,

Ph.D. 28%, and B.Ed. 24%. And 20 colleges responded of which 60% government colleges and 40% private colleges.

Table: 3.3.3

List of Teachers used in questionnaires and interview

Sex	Respondents	%	Colleges	Respondents	%	Educational Qualification					
Male	18	60%	Government	12	60%	M.A.	M.Sc.	M.Com.	M.Phil.	Ph.D.	B.Ed
Female	12	40%	Private	8	40%	19	7	4	6	4	4
Total	30	100 %	Total	20	100 %	63%	24%	13%	20%	13%	13%

Table above shows Profile of Teacher as follows; total responding is 30 of which male is 60% and female is 40%. Education qualification of respondents is M.A. 64%, M.Sc. 24%, M.Com.14%, M.Phil. 20%, Ph.D. 14%, and B.Ed.14%. total colleges is 19 of which 64% is government colleges and 36% is private colleges.

Table: 3.3.4
List of students used in questionnaires and interview

Sex	Respondents	%	Colleges	Respondents	%	Educational Qualification		
Male	380	52%	Government	12	60%	B.A.	B.Sc.	B.Com.
Female	355	48%	Private	8	40%	417	174	144
Total	735	100 %	Total	20	100 %	57%	23%	20%

The above table show students profile as follows; 735 students responded of which 52% male and 48% female, Education Qualification are B.A. 57%, B.Sc. 23%, B.Com. 20% , and Colleges responded total 20 of which 64% Government Colleges and 36% Private Colleges.

Table: 3.3.5

List of Local Community used in questionnaires and interview

Sex	Respondents	%	Occupation	Respondents	%	Education	
Male	100	50%	Government	60	30%	Literate	Illiterate
Female	100	50%	Private	140	70%	200	Nil
Total	200	100 %	Total	200	100 %	100%	0%

Table above show profile of local community as follows; Total 200 responded of which 50% male and 50% female, 0ccupation 30% were government sectors and 70% were private sectors, Education 100% literate and 0% illiterate responded.

A purposive sample was used for environmental attitude scale and awareness scale to measure the college students in the present study. Altogether 12 (twelve) Colleges were selected from 11 (eleven) districts of Nagaland randomly. Sample of the present study comprised of 330 students of which 164 boys and 166 are girls. The students were studying in colleges.

Table: 3.3.6

List of colleges and number of students used for attitude and awareness test

Category of college	Districts	Name of College	No. of Students	Total
Private	Kohima	Modern College	54	186
		Sazolie College	72	
	Peren	St.xavier College	10	
	Mokokchung	Tuli College	26	
	Dimapur	Public College of commerce	24	
Government	Phek	Pfiitsero College	37	144
	Kiphrie	Ziaji presidency College	15	
	Tuensang	Sao Chang college	20	
	Mon	Wangkhas College	20	
	Zunheboto	Zunheboto Government College	19	
	Longleng	Yinglie College	9	
	wokha	Mount Tiyi College	24	

Total	11 Districts	12 Colleges	330	330

The above table showed list of colleges and number of students are from 11 districts, 12 colleges of which 4 is private colleges and 7 is government colleges. The population of the present study are students are 330 of which 186 students are from private colleges and 144 students are from government colleges. The said population are used for environmental attitude and awareness scales

3.4 DATA COLLECTION

A relevant data are collected both in primary data and secondary data in the present study. They are as follows: a) Primary data's collection: Data are collected from primary sources by administering questionnaire, interview, area study, and observation, and b) Secondary data collection: Data are collected from secondary sources like documentary, record sources, journals and text books.

3.5 TOOLS USED

3.5.1 Questionnaires- In order to collect the require data and elicit opinions and views of the respondents, the investigator deviced questionnaires. These questions were formulated by the investigator and analysed after consultation with expert educationists. Various literature, journals, dictionaries, research report etc were studied and consulted.

3.5.2 Interview - An interview schedule was developed to interviews the respondents through personal observation and interview.

3.5.3 Linkert Scale Environmental Attitude Scale- It is a five point Likert Scale type with 22 items which assesses the environmental attitude of the college students. It has five response options (strongly agree, agree, undecided, disagree, strongly disagree) allowing the students to indicate their level of agreement or disagreement to a given statement. It is divided into two sections. The first section requires the subjects to fill in their personal information and the second section contains 22 items.

3.5.3.1 Development of the test- before formulating the test items, questions regarding the condition of the environment and its conservations were asked to college students and their responses were recorded. Using these responses and related literature (Leeming et al. 1997; Sama 2003; Uzun and Saglam 2006; Gokce et al. 2007; Aslan et al. 2008), the test items were formulated. The initial test items were 85 in total. Each item was placed into a matrix and then asked to be evaluated in terms of four areas: content validity, clarity and understandability, accuracy and distracters. The items were sent to experts in the field to determine the relevance, coverage, comprehension and consistency of the test. The items were pilot tested to 250 college students. According to their response, irrelevant items were removed resulting in 22 items.

3.5.3.2 Reliability and validity- validity is concerned with whether the items are measuring what the test intents to measure. Reliability is about the consistency of the scores. For validity, the expert opinions provided data about content and face validity, and students' evaluations provided data about construct validity. Cronbach alpha internal consistency coefficient was calculated to test reliability. The value of Cronbach alpha can range from 1 to 0. A basic research it should be at least 0.8 (Lui, 2003). The Cronbach alpha for the present scale was found to be 0.84, which can be considered a reliable and valid test.

3.5.3.3 Scoring – each item was given a maximum score of 5 (strongly agree=5, agree=4, undecided=3, disagree-2, strongly disagree= 1). Out of the 22 items, four items are negatively worded and hence the scores on these four items were reversed. The total possible score of the test is 110. A score of 0-36 is low, 37-73 is medium and 74 to 110 are high.

3.5.4 Environmental Awareness Scale- The scale was developed to study and compare the general awareness regarding the environment amongst the college students in Nagaland from the different districts present in the study. The term 'Environmental Awareness' not only implies knowledge about environment but also attitude, values and necessary skills to solve environment related problems. Moreover, environmental awareness is the initial step ultimately leading to the ability to carry on responsible citizenship behavior (Sengupta, Das Maji, 2010). The Environmental Attitude Scale consists of 20 items which will measure the actual knowledge of the college students

in the study regarding the environment. It is divided into two sections. The first section requires the subjects to fill in their personal information and the second section contains 20 items.

3.5.4.1 Development of the test- before formulating the test items, questions regarding the condition of the environment and its conservations were asked to college students and their responses were recorded. Using these responses and related literature (Azizi et al, 2009, Sengupta, Das Maji, 2010, Ibrahim et al, 2010),the test items were formulated. The initial test items were 80 in total. Each item was placed into a matrix and then asked to be evaluated in terms of four areas: content validity, clarity and understandability, accuracy and distracters. The items were sent to experts in the field to determine the relevance, coverage, comprehension and consistency of the test. The items were pilot tested to 250 college students. According to their responses, irrelevant items were removed resulting in 20 items.

3.5.4.2 ***Reliability and validity***- validity is concerned with whether the items are measuring what the test intents to measure. Reliability is about the consistency of the scores. For validity, the expert opinions provided data about content and face validity, and students' evaluations provided data about construct validity. Cronbach alpha internal consistency coefficient was calculated to test reliability. The value of Cronbach alpha can range from 1 to 0. A basic research it should be at least 0.8 (Lui, 2003). The Cronbach alpha for the present scale was found to be 0.82, which can be considered a reliable and valid test.

3.5.4.3 Scoring – each item was scored 1 for a correct answer and 0 for a wrong answer. The total possible score of the test is 20 and a minimum of 0 scores. A score of 0-6 is low, 7-13 is medium and 14-20 is high.

3.6 STATISTICAL TECHNIQUE USED

Statistical technique is used to analyze the data's in the present study. Responses from Head of the Institution, Teachers, Students, and Local Communities were tabulated and counted from the various items of the questionnaire and interview schedules made personally. The

data's from each item of each sub section of the questionnaire were calculated in terms of percentage and each table were given with a specific title. For the environmental awareness and attitude scales descriptive and inferential statistics were used. For the present study mean, median, mode and standard deviation were used and for inferential selection by the investigator used one-way Anova.

3.6.1 **Formula of Mean**

The mean has been taken as the sum of all the scores in the distribution divided by the total number of scores

Mean= $\sum X/n$

1. $\sum X$= sum of scores
2. N= number of scores

3.6.2 Formula of Median

The median has been taken as the point along the scale of scores below which 50% of the scores fall.

Mdn = *LL*+ (i) [.5n-cum *f* below/ *f*]

Where,

1. *LL*= Lower real limit of class interval containing P_{50}
2. i= width of the class interval
3. .5n= number of scores lying below the median
4. cum *f* below= number of scores lying below *LL*
5. *f*= frequency of the scores containing the median

3.6.3 **Formula of Mode**

Mode is the value which occurs most frequently in a set of observations and around which the other items of the set cluster densely. The mode of a frequency distribution is that value of the variable which has maximum frequency. Mode formula below:

$$\text{Mode} = L + \frac{f_m - f_{m-1}}{(f_m - f_{m-1}) + (f_m - f_{m+1})} \times w$$

where:

1. L is the lower class boundary of the modal group
2. f_{m-1} is the frequency of the group before the modal group
3. f_m is the frequency of the modal group
4. f_{m+1} is the frequency of the group after the modal group
5. w is the group width

3.6.4 Formula of Standard Deviation

a.Standard Deviation

$$S_{X=} \sqrt{SS_{x/}n}$$

Where,

1. $S_{X=}$ Standard Deviation
2. $SS_{X=}$ Sum of squared deviations from the mean
3. N= number of scores

b. Sum of squares was calculated using the formula

$$SS_{X=}\sum x^2 - (\sum X)^{2}/N$$

Where,

1. X^2 = square of the total sum of scores
2. $\sum X^2$ = total sum of the squares of scores

3.6.5 One Way Anova

$$F= S^2_{bet}/S^2_{w}$$

Where,

1. F = Fisher ratio
2. S^2_{bet} = between group variance
3. S^2_w = within group variance

3.6.6 **Cronbach Alpha correlation coefficient**.

$$\alpha = \{[N/N-1] \times \text{total variance-sum of variance of each item}\} \times \text{total variance}$$

3.7 ANALYSIS AND INTERPRETATION OF DATAS

Analysis and interpretation of data collected through administering of questionnaire, interview schedules, attitude and environmental awareness scales were analyzed and interpreted employing appropriate statistical techniques. Responses to the questionnaires and interviews, altogether 20 colleges were selected from eleven districts of Nagaland. The sample of the present study comprised of 25 Head of the Institutions of which 21 male and 4 are female, 30 Teachers of which 18 male and 12 are female, 735 Students of which 380 male and 335 are female, 200 Local community of which 100 male and 100 are female. The study was conducted in Higher Education / Colleges of Nagaland including 330 students used in the present study of environmental attitude scale and environmental awareness test were classified, tabulated and counted into percentage. For the Awareness Test, there were 20 questions and each question carried 1 mark for correct answer and wrong answer carried 0. So, the total score is 20 marks out of 20 questions. Respondent's awareness on environmental knowledge was categorized according to the composite score of responses of twenty questions. Respondents who scored 0 to 6 have a low awareness, 7 to 13 have an average awareness, and 14 to 20 have a high awareness on environmental knowledge

CHAPTER – IV
ANALYSIS AND INTERPRETATION OF DATA

1.1 INTRODUCTION

Analysis and interpretation of data collected through administering of questionnaire, interview schedules, attitude and environmental awareness scales were analyzed and interpreted employing appropriate statistical techniques. Responses to the questionnaires and interviews 25 (Twenty Five) Head of the Institutions, 30 (Thirty) Teachers, 735 (Seven Hundred Thirty Five) Students, and 200 (Two Hundred) Local Community were classified, tabulated and counted into percentage. For the Awareness Scale, there were 20 questions and each question carried 1 mark for correct answer and wrong answer carried 0. So, the total score is 20 marks out of 20 questions. Respondent's awareness on environmental knowledge was categorized according to the composite score of responses of twenty questions. Respondents who scored 0 to 6 have a low awareness, 7 to 13 have an average awareness, and 14 to 20 have a high awareness on environmental knowledge.

4.2 ANALYSIS AND INTERPRETATION OF DATA COLLECTED THROUGH QUESTIONNIARE AND INTERVIEWS; AND USED WITH ATTITUDE AND AWARENESS SCALE

OBJECTIVE: 1

To study the programme in Nagaland about Environmental Education

Table: 4.2.1

Environmental Education included in the Curriculum of Higher Education

Items	Respondents of 'Yes'	Percentage %	Respondents of 'No'	Percentage %
Environmental Education	25	100%	0	0%
As Elective Subject	0	0%	0	0%

As Compulsory Subject	25	100%	0	0%

Table above shows Environmental Education included in curriculum of Higher Education as follows; Environmental education responds of Yes is 100% and No is 0%. As elective subject responded of Yes is 0% and No is 0%. As compulsory subject responded of Yes is 100% and No is 0% .

Table: 4.2.2

Environmental Education Subject Teacher

Items	No. of Respondents	Percentage %
Yes	9	37%
No	16	63%

Table above show as environmental education subject teacher; 37% responded of Yes and 63% responded of No.

Table: 4.2.3

Programmes or Areas college authority organize on environmental activities

Items	No.of respondents	Percentage %
Regular classroom teaching	20	80%
Field study	23	92%
Personal Hygiene	15	60%
Cleanliness	18	72%
Mass social work	21	84%
Tree plantation	20	80%
Conducting Seminar and workshop	21	84%

Above table shows the responding of interview schedule as listing down Programmes or areas in which college authorities organized environmental activities as follows: 80% responded regular classroom teaching, 92% responded field study, 60% personal hygiene, 72% Cleanliness, 84% responded Mass social works, 80% responded Tree plantations, and 84% seminar and workshops.

Table: 4.2.4

Programmes on Environmental Guidance and Counseling in colleges

Items	No. of respondents	Percentage %
Yes	15	60%
No	10	40%
Areas of Guidance and counseling		
National Service Scheme (NSS)	15	50%
Classroom Discussion	10	33%
Seminar and Workshop	7	23%

Table above showProgrammes on Environmental guidance and counseling in colleges as follows; 60% responded Yes, 40% responded No, 50% National Service Scheme (NSS), 33%classroom discussion, 23% seminar and workshop.

Table: 4.2.5

Colleges having environmental education as a subject

Items	No.of respondents	Percentage %
Yes	30	100%
No	0	0%

Table above shows Colleges having environmental education as a subject; 100%

responded Yes, and 0% responded No.

Table: 4.2.6

Syllabus effectiveness in developing awareness for students

Items	No. of respondents	Percentage %
Yes	20	66%
No	4	*14%*
Cannot say	*6*	*20%*

Table above shows Syllabus effectiveness in developing awareness for students; responding of Yes is 66%, responding of No is 14%, and responding of Cannot Say is 20% .

Table: 4.2.7

Teachers participation in Celebration important International Environmental Day in colleges

Items	No. of respondents	Percentage %
World Earth Day	12	40%
World Environment Day	27	90%
World Population Day	5	17%
World Forest Day	4	14%
World Health Day	4	14%
World Consumer Day	6	20%
World AID'S Day	23	77%

Table above shows Teachers participations in Celebrating of important International Environmental Day in colleges as follows; responding to World Earth Day is 40%,responding to World Environmental Day is 90%, responding to World Population Day

is 17%, World Forest Day is 14%, World Health Day is 14%, World Consumer Day is 20%, and World AID's Day is 77%.

Table: 4.2.8

Teachers participation in Protection and Preservation of forest and wildlife

Items	No. of respondents	Percentage %
Yes	10	33%
No	20	67%
Reason for not participation		
Lack of awareness	8	26%
Lack of financial resources	6	20%
Lack of direction from the Head of the institution	9	30%

Table above shows Teachers participation in Protection and preservation of forest and wild life as follows; 33% responded Yes and 67% responded No. Reason for not participation; 26% responded Lack of awareness, 20% responded Lack of financial resources, and 30% responded Lack of direction from the higher authority

Table: 4.2.9

Teacher contribution in controlling and checking of environmental pollution and preservation

Items	No. of respondents	Percentage%
Teacher as role model of environmentalist	20	67%
Skill training	18	60%

Organize awareness programmes	20	67%
Participate cleanliness drives	23	77%
Mass social work	23	77%
Tree plantation	18	60%
Proper waste disposal	20	67%
Buy eco-friendly products	24	80%
Conducting seminar and workshop	21	70%

Table above shows teacher contribution in controlling and checking of environmental pollution and preservation are as follows; 67% responded Teacher as role model of environmentalist, 60% responded as Skill training, 67% responded as Organize awareness programmes, 77% responded as Participate cleanliness drives, 77% responded as Mass social work, 60% responded as Tree plantation, 67% responded as Proper waste disposal, 80% responded as Buy eco-friendly products , and 70% responded as Conducting seminar and workshop.

Table: 4.2.10

Types of environmental guidance and counseling provided by teachers to students

Items	No. of respondents	Percentage%
Educating students about the issues and problems of social, economic, political and health, as environment play its role for better performances.	25	83%
Students are encouraged to participate in various environmental activities like, cleanliness drive, mass social works, tree plantations, use re-usable materials, and buy eco-friendly products.	27	90%
Encouraged students to initiate and participate in protection and preservation of forest, wildlife and endangered species in their local areas.	26	87%

Table above show types of environmental guidance and counseling provided by teacher to students as follows; 83% responded that Educating students about the issues and problems of social, economic, political and health, as environment play its role for better performances. 90% responded that Students are encouraged to participate in various environmental activities like, cleanliness drive, mass social works, tree plantations, use re-usable materials, and buy eco-friendly products. 87% responded that they encouraged students to initiate and participate in protection and preservation of forest, wildlife and endanger species in their local areas.

Table: 4.2.11

Areas students participated in environmental education

Items	No. of respondents	Percentage%
Observing World Environmental Day	700	95%
Cleanliness drives	213	28%
Mass social works	670	91%
Tree plantations	308	41%
Proper waste disposal	567	77%
Field study	684	93%
Attending environmental seminar and workshop	478	65%

Table above show areas students participated in environmental education as follows; 95% responded Observing World Environmental Day, 28% responded Cleanliness drives, 91% responded Mass social works, 41% responded Tree plantations, 77% responded Proper waste disposal, 93% responded Field study, and 65% responded Attending environmental seminar and workshop.

Table: 4.2.12

Students Celebrated of International Environmental Day's in colleges

Items	No. of respondents	Percentage%
World Earth Day	67	10%
World Environmental Day	700	96%
World Forest Day	18	3%
World Health Day	49	7%
World Population Day	31	5%
World AID'S Day	236	33%

Table above show celebrations of International Environmental Day as follows; 10% responded celebration of World Earth Day, 96% responded celebration of World Environmental Day, 3% responded celebration of World Forest Day, 7% responded celebration of World Health Day, 5% responded World Population Day, and 33% responded celebration of World AID's Day.

Table: 4.2.13

Conducts of Minor research studies by teachers

Items	No. of respondents	Percentage %
Yes	3	10%
No	27	90%
Reasons for not conducting minor research studies by teachers		
Lack of time	20	67%
Lack of Knowledge	15	50%

Lack of financial resources	15	50%

Table above shows Conducts of Minor research studies by teachers as follows; 10% responded Yes, and 90%responded No. Reason for not conducting minor research studies by teachers; 67% responded Lack of time, 50% responded Lack of Knowledge, and 50% responded Lack of financial resources.

Table: 4.2.14

Student facing problems in learning environmental education subject

Items	No. of respondents	Percentage %
Some Times	296	40%
Often	54	8%
Never	385	52%
Reason for students facing problems in learning environmental education subject		
Lack of subject teacher	334	45%
Shortage of text books, journal and magazine.	330	44%
Lack of environmental seminar and workshop.	300	40%
Lack of co-operation between teacher and student.	250	34%

Table above shows problems in learning environmental subject as follows; 40% responded some time, 8% responded often, and 52% responded Never . Reason for students facing problems in learning environmental education subject; 45% responded Lack of subject teacher, (ii)44% responded Shortage of text books, journal and magazine, 40% responded Lack of environmental seminar and workshop, 34% responded Lack of co-operation

between teacher and student.

Table: 4.2.15

Environmental Education as a subject is important for college students

Items	No. of respondents	Percentage %
Yes	678	92%
No	57	8%
Reason of knowledge of environmental important in students		
Developing positive attitude	550	75%
Create environmental awareness	470	64%
Sustainable method of using natural resources.	655	89%
Provide knowledge of ecological balanced.	600	81%

Table above show Environmental Education as a subject is importance for college students as follows; 92% responded Yes and 8% responded No. Reason for important of environmental education; 75% responded Developing positive attitude, 64% responded Create environmental awareness, 89% responded Sustainable method of using natural resources, 81% responded Provide knowledge of ecological balance.

Objective: 2

To study the effort of local community with regard to environmental education

Table: 4.2.16

Local community on mass environmental awareness programmes

Items	No. of respondents	Percentage %
Yes	50	30%
No	60	30%
Some Time	80	40%

Table above show local community on mass environmental awareness programmes as follows; 30% responded Yes, 30% responded No, and 40% responded some time.

Table: 4.2.17

Environmental awareness programmes conducted by NGO's/Government Organization

Items	No. of respondents	Percentage %
Yes	96	48%
No	104	52%

Table above show environmental awareness created by NGO's/ Government Organization as follows; 48% responded Yes, and 52% responded No.

Table: 4.2.18

Teacher and Student involvement with local community in Environmental Conservation

Items	No. of respondents	Percentage %
Yes	25	100%
No	0	0%

Table above show Teacher and student involvement with local community in environmental Conservation;100% responded Yes, and 0%responded No.

Table: 4.2.19

College authorities in Creating Environmental Awareness for Local Community

Items	No. of respondents	Percentage %
Environmental post-card	8	32%
Environmental bill board	10	40%
Dramas on environmental problems	7	28%

Table above shows College authorities in creating environmental awareness for local community as follows; 32% responded use of Environmental post-card, 40% responded used of Environmental bill board, and 28% responded used of Dramas on environmental problems.

Table: 4.2.20

Local community having the knowledge of environmental importance

Items	No. of respondents	Percentage %
Yes	135	68%
No	65	32%

Table above shows Local community having the knowledge of environmental importance as follows; 68% responded Yes, and 33% responded No.

Table: 4.2.21

Areas local community participated in creating environmental awareness

Items	No. of respondents	Percentage %
Cleanliness drives	175	87%
Mass social works	191	95%

Mass tree plantations	150	75%
Band of forest burning	184	92%
Proper drainage system	100	50%

Table above show areas local community participated in creating environmental awareness are as follows; 87% responded Cleanliness drives, 95% responded Mass social works, 75% responded Mass tree plantations, 92% responded Band of forest burning, 50% responded Proper drainage system.

Table: 4.2.22

Local community participation in Utilization of waste management in their locality

Items	No. of respondents	Percentage %
Yes	68	34%
No	71	36%
Cannot say	61	30%

Table above show utilization of waste management as follows; 34% responded Yes, 35% responded No, and 30% responded cannot say.

Table: 4.2.23

Local community participated in environmental activities

Items	No. of respondents	Percentage %
Mass social works	188	94%
Mass cleanliness drives	108	54%
Mass tree plantations	49	25%

Table above show local community participated in environmental activities as follows; 94% responded mass social works, 54% responded mass cleanliness drives, and 25% responded mass tree plantations.

Table: 4.2.24

Need and importance in conserving bio-diversity in local areas

Need for conservation of bio-diversity					
The need to lead more sustainable life styles.			The need to use natural resources in more equitable manner.		
Items	No. of respondents	Percentage %	Items	No. of respondents	Percentage %
Yes	84	41%	Yes	87	43%
No	47	24%	No	48	24%
Cannot say	69	35%	Cannot say	65	33%

Table above show need for conserving of bio-diversity as follows; The need to lead more sustainable life styles; 41% responded Yes,24% responded No, and 35% responded cannot say. The need to use natural resources in more equitable manner, 52% responded Yes, 24% responded No, and 33% responded cannot say.

Table: 4.2.25

Different diseases caused through environmental destruction and pollution

Items	No. of respondents	Percentage%
Malaria	172	86%
Typhoid	123	61%
Cholera	80	40%
Asthma	74	37%

Viral Fever	150	75%
Influenza	110	55%

Table above show diseases cause through environmental destruction and pollution as follows; 86% responded Malaria, 61% responded Typhoid, 40% responded Cholera, 37% responded Asthma, 75% responded Viral Fever, and 55% responded Influenza.

Table: 4.2.26

Local communities participation in reserve forest and wild life protection

Items	No. of respondents	Percentage %
Yes	97	48%
No	103	52%

Table above show local communities participation in reserve forest and wild life protection as follows; 49% responded Yes and 52% responded No.

Table: 4.2.27

Preventive measure to control and check environmental pollution and preservation

Items	No. of respondents	Percentage%
Cleanliness drives	184	92%
Mass social works	192	96%
Mass tree plantation	158	79%
Construction of proper common waste disposal	100	50%
Maintenance of proper drainage system	100	50%

Table above show preventive measure to control and check environmental pollution and preservation as follows; 92% responded Cleanliness drives, 96% responded Mass social

works, 79% responded Mass tree plantation, 50% responded Construction of proper common waste disposal, and 50% responded Maintenance of proper drainage systems.

Table: 4.2.28

Local communities participation in environmental activities

Items	No. of respondents	Percentage %
Saving trees	100	50%
Tree plantation	149	75%
Recycle waste production	34	17%
Conservation of forest area	85	43%
Buy eco-friendly products	25	13%

Table above shows local community participation in environmental activities as follows; 50% responded Saving trees, 75% responded Tree plantation, 17% responded Recycle waste production, 43% responded Conservation of forest area, 13% responded Buy eco-friendly products.

Table: 4.2.29

Practicing Jhum cultivation by local community

Items	No. of respondents	Percentage %
Yes	135	67%
No	65	32%

Table above shows practicing jhum cultivation as follows; 68% responded Yes, and 32% responded No.

Table: 4.2.30

Local community participation in Tree plantation after jhum cultivation is done

Items	No. of respondent	Percentage %
Yes	91	44%
No	118	56%
Reasons for planting trees after jhuming cultivation is done		
To re-nourish the soil	75	37%
To prevent soil erosion	78	39%s
Reasons for not planting trees after jhuming cultivation is done		
Lack of awareness	80	40%
Lack of nursery tree	70	35%

Table above show tree plantation after jhum cultivation is done as follows; 44% responded Yes, 56% responded No. Reasons for planting trees after jhum cultivation is done; 37% responded to re-nourish the soil, 39% responded to prevent soil erosion. Reasons for not planting trees after jhum cultivation is done; 40% responded lack of awareness, 35% responded lack of nursery trees.

Table: 4.2.31

Environmental protection and conservation is necessary for human being

Items	No. of respondents	Percentage%
To have a healthy life, free from various diseases.	180	90%
To have free from air, water, and food pollution.	166	83%

To keep alive the beauty of natural flora and fauna.	153	76%

Table above show environmental protection and conservation is necessary for human being as follows; 90% responded to have a healthy life, free from various diseases, 83% responded to have free from air, water, and food pollution, and 76% responded to keep alive the beauty of natural flora and fauna.

Table: 4.2.32

Effect of climate change in the locality

Items	No. of respondents	Percentage%
Scarcity of water	183	91%
Rise in temperature	178	89%
Drought	100	50%
Scarcity of rainfall	177	88%
Health hazard	100	50%

Table above show effects of climate change in the locality as follows; 91% responded Scarcity of water, 89% responded Rise in temperature, 50% responded Drought , 88% responded Scarcity of rainfall ,and 50% responded Health hazard.

Table: 4.2.33

Problems faced in creating awareness for healthy environment by local community workers

Items	No. of respondents	Percentage%
Lack of awareness and Ignorance	50	25%
Lack of knowledge and information	125	62%
Lack of follow-up programmes	35	17%

Table above show problems face in creating awareness for healthy environment by local community workers as follows; 25% responded Lack of awareness and Ignorance, 62% responded Lack of knowledge and information, and 17% responded Lack of follow-up programmes.

Objective: 3

To study the programmes of environmental education offered by colleges

Table: 4.2.34

College authority allowed Student to participation in Environmental Activities

Items	No. of respondents	Percentage %
Mass social work	25	100%
Mass cleanliness drive	24	96%
Mass tree plantation	20	80%

Table above show how College authorities allowed Students to participate in environmental activities as follows; 100% Mass social work responding, 96% Mass cleanliness drive responding and 80% Mass tree plantation responding .

Table: 4.2.35

Teachers participation in different Kinds of environmental studies/projects

Kind of study	Respondents Of 'Yes'	s%	Respondents Of 'No'	%	Respondents Of 'Never'	%	Respondents Of 'Some time'	%
Projects on Soil Erosion	15	50 %	4	13 %	5	17 %	6	20 %
Field trip study	17	57 %	3	10 %	3	10 %	7	24 %

Study on Deforestation	17	57 %	0	0%	0	0%	13	44 %
Study on river Pollution	19	64 %	4	14 %	3	10 %	4	14 %

Table above shows Teachers participation in different Kinds of environmental studies/ projects. Soil erosion responding of Yes is 50%, No is 13%, Never is 17%, and Some time is 20%. Field trip study responding of Yes is 57%, No is 10%, Never is 10% and some time is 24%. Study on deforestation responding of Yes is 57%, No is 0%, Never is 0%, and Some time is 44%. Study on river pollution of Yes is 64%, No is 14%, Never is 10%, and Some time is 14% .

Table: 4.2.36

Conducts of Minor research studies by teachers

Items	No. of respondents	Percentage %
Yes	3	10%
No	27	90%
Reasons for not conducting minor research studies by teachers		
Lack of time	20	67%
Lack of Knowledge	15	50%
Lack of financial resources	15	50%

Table above shows Conducts of Minor research studies by teachers as follows; 10% responded Yes, and 90%responded No. Reason for not conducting minor research studies by teachers; 67% responded Lack of time, 50% responded Lack of Knowledge, and 50% responded Lack of financial resources.

Table: 4.2.37

Problems of students in participating environmental activities

Items	No. of respondents	Percentage %
Yes	127	18%
No	608	82%
Reason and problems of students in participating environmental activities		
Lack of awareness.	100	14%
Lack of good leadership	120	16%
Lack of co-operation among teachers and students.	80	11%

Table above show problems in participating environmental activities as follows; 18% responded Yes, 82% responded No. Reason and problems of students in participating environmental activities;14% responded Lack of awareness,16% responded Lack of good leadership, 11% responded Lack of co-operation among teachers and students.

Table: 4.2.38

Teachers participation in Environmental conservation

Items	No. of Respondents	Percentage %
Yes	18	60%
No	5	16%
Some time	7	24%

Table above show Teachers participation in environmental conservation as follows; 60% responded Yes, 16% responded No, and 24% responded some time.

Table: 4.2.39

Teachers views about Environmental education as subject at higher learning

Items	No. of respondents	Percentage%
It provide knowledge of environment and ecological balanced	15	50%
Skills training for students to protects and preserve environment from destruction and pollution	15	50%

Table above show environmental education as subject at higher learning are as follows; 50% responded As compulsory subject, and 50% responded that Skill training for students to protect and preserve environment from destruction and pollution.

Table: 4.2.40

Purpose of environmental education subject at college level by teachers

Items	No. of respondents	Percentage%
As compulsory subject	20	67%
To create awareness in students	22	73%
To develop positive attitude in students	20	67%
To understand the bio-diversity and have balanced eco-system	21	70%

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Table above show purpose of environmental education are as follows; 67% responded As compulsory subject, 73% responded to create awareness in students, 67% responded to develop positive attitude in students, and 70% responded to understand the bio-diversity and have balanced eco-system.

Table: 4.2.41

Environmental activities conducted by teachers

Items	No. of respondents	Percentage%
Mass cleanliness drive	20	67%
Mass social works	20	67%
Tree plantations	18	60%
Proper waste disposal	21	70%
Buy eco-friendly products	22	73%
Conducting field study	20	67%
Conducting seminar and workshop	20	67%

Table above show environmental activities conducted by teachers as follows; 67% responded Mass cleanliness drive, 67% responded Mass social works, 60% responded Tree plantations, 70% responded Proper waste disposal, 73% responded Buy eco-friendly products, 67% responded Conducting field study, and 67% responded Conducting seminar and workshops.

Table: 4.2.42

Colleges offering Environmental Education as a subject

Items	No. of respondents.	Percentage %
Yes	735	100%
No	0	0%

Table above show environmental education subject as follows; 100% responded Yes, and 0% responded No.

Table: 4.2.43

Subject Teacher for Environmental Education

Items	No. of respondents	Percentage%
Yes	388	53%
No	347	47%

Table above show subject teacher for environmental education as follows; 53% responded Yes, and 47% responded No.

Table: 4.2.44

Utilization of waste Management by students

Items	No. of respondents	Percentage%
Yes	161	22%
No	357	49%
Some Time	217	29%

Table above show utilization of waste management by students as follows; 22% responded Yes, 49% responded No, and 29% responded some time.

Table: 4.2.45

Syllabus effectiveness in creating environmental awareness for students

Items	No. of respondents	Percentage%
Yes	615	84%
No	44	6%
Cannot say	76	10%

Table above show syllabus effectiveness in creating environmental awareness for students as follows; 84% responded Yes, 6% responded No, and 10% responded cannot say.

Table: 4.2.46

Student participation in Environmental conservation

Items	No. of respondents	Percentage%
Yes	377	51%
No	172	23%
Some Time	186	26%

Table above show student participation of environmental conservation as follows; 51% responded Yes, 23% responded No, and 26% responded some time.

Table: 4.2.47

Student participation in environmental activities

Items	No. of respondents	Percentage%
Mass cleanliness drives	695	94%
Mass social works	574	78%
Tree plantations	429	58%
Buying eco-friendly products	375	48%
Proper waste disposal	410	55%
Participating in environmental seminar and workshop	326	44%
Field Study	527	71%

Table above show students participate in environmental activities as follows; 94% responded Mass cleanliness drives, 78% responded Mass social works, 58% responded Tree plantations, 48% responded Buy eco-friendly products, 55% responded Proper waste disposal, 44% responded Participating in environmental seminar and workshop, and 71% responded Field Study.

Table: 4.2.48

Environmental Education Effectiveness of syllabus for students

Items	No. of respondents	Percentage
Yes	335	46%
No	400	54%
Reason Environmental Education effectiveness of syllabus for students		
Framing of curriculum basing on the need and aspiration of present society.	200	27%
Skill training in environmental protection and preservation should include in the syllabus.	200	27%

Table above show effectiveness of syllabus for students are as follows; 44% responded Yes, and 54% responded No. Reason 27% responded Framing of curriculum basing on the need and aspiration of present society, 27% responded Skill training in environmental protection and preservation should include in the syllabus.

Objective: 4

To study and compare the attitude of higher education students in Nagaland towards Environment

Table: 4.2.49

College Authorities Attitude towards Forest and Wildlife preservation and protection

Items	No. of respondents	Percentage %
Positive	25	100%

Negative	0	0%
Neutral	0	0%

Table above showed College authorities attitude towards forest and wildlife preservation and protection as follows; 100% responded positive, 0% responded negative, and 0% responded neutral.

Table: 4.2.50

Students attitude with academic achievement towards environment

Items	No. of respondents	Percentage%
Yes	19	64%
No	11	36%

Table above shows Students attitude with academic achievement towards environment. 64% responded Yes, and 36 % responded No.

Table: 4.2.51

Level of students attitude with academic achievement towards Environment

Items	No. of respondents	Percentage %
Higher achiever	15	50%
Average achiever	15	50%
Below average achiever	0	0%

Table above shows Level of students attitude with academic towards environment. Higher achiever response is 50%, Average achiever response is 50%, and Below average achiever response is 0% .

Table: 4.2.52

Teachers views about Student interest towards environmental education subject

Items	No. of respondents	Percentage %
Yes	24	80%
No	3	10%
Cannot say	3	10 %

Table above shows Teachers views about Students interest towards environmental education subject are as follows; responding of Yes is 80%, responding of No is 10%, and responding of Cannot say is 10%.

Table: 4.2.53

Teachers view about Student attitude towards environmental education

Items	No. of respondents	Percentage %
Boys	4	15%
Girls	3	10%
Both	22	75%

Table above show Teachers view about Student attitude towards environmental education as follows; Boys responding is 15%, Girls responding is 10%, and Both responding is 75%.

Table: 4.2.54

Students Attitude towards environmental education

Items	No. of respondents	Percentage%
Positive	597	80%
Negative	31	5%
Neutral	107	15%

Table above shows Students attitude towards environmental education as follows; 81% responded Positive, 5% responded Negative, and 15% responded Neutral.

Table: 4.2.55

Local community Attitude towards environment

Items	No. of respondents	Percentage %
Positive	78	39%
Negative	36	18%
Neutral	84	43%

Table above shows local community attitude towards environment as follows; 39% responded positive, 18% responded negative, and 43% responded neutral.

Table: 4.2.56

Environmental Attitude Scale (A)

S.NO	DISTRICTS	MEAN	MODE	MEDIAN	STANDARD DEVIATION
1.	Dimapur	91.2	98.5	89.5	6.7
2.	Kiphere	90.3	90.5	90.5	6.6
3.	Kohima	92.5	94.0	93.2	6.9
4.	Longleng	89.3	95.5	89.5	6.2
5.	Mokokchung	91.2	88.5	96.5	7.6
6.	Mon	87.9	90.5	85.5	6.1
7.	Peren	89.1	80.5	87.5	6.5
8.	Phek	90.9	91.0	90.2	7.8
9.	Tuensang	92.1	92.5	92.7	6.8
10.	Wokha	91.7	94.5	92.5	5.2
11.	Zunheboto	89.9	93.5	91.7	9.8

The scale was developed and administered to study and compare the environmental attitude of the college students in the study. The scores of the students from the 11 districts were calculated and performance of the students from the different districts were compared

For the analysis of the Environmental Attitude Scale, descriptive and inferential statistics were used. For the former, mean, mode, median and standard deviation were calculated from the obtained data. They were all calculated for all the eleven districts as shown in the table Since the maximum score possible in the scale administered is 110, a mean score will have a value of 55.

The average mean of the total score was found to be 90.5. a score that is less or equal to 36 is considered low, 37- 73 is medium and 74-110 is high. A mean average score of 90.5 is indicative that score of the students; attitude towards environment is high. There are some differences in the mean of students from the different districts with Kohima district having the highest mean (92.5) and Mon having the lowest mean score(87.9). However their differences are not exceedingly large and the general score is quite high.

The mode is the score that occurs with the highest frequencies. The mode is highest for Dimapur district with 98.5 and Peren district has the lowest with 80.5. most of the scores in mode for the different districts lie between 90 to 94.

The median of a distribution is the point along a scale of possible scores below which 50% of the score falls. It is less sensitive than mean to the presence of extreme scores. The scores of students from Kohima district had the highest median of 93.2 and Mon district with the lowest with a median of 85.5. it means that for Kohima district, 93.2 is the point below which 50% of the scores lie, while for Mon district, 85.5 is the point below which 50% of the scores lie.

The standard deviation is a measure of variance and it is responsive to the exact position of every score in the distribution. The standard deviation ids highest for Zunheboto district with 9.8 and lowest for Wokha district with 5.2. Most of the standard deviation scores amongst the district lie between 6 and 7. There are little variations in the standard deviations as well amongst the districts.

Table: 4.2.57

Environmental Attitude Scale (B)

SOURCE	SS	df	S^2	F	p	α
Between districts	5 83.5	10	58.35	1.12	0.346	0.05
Within districts	16647.9	319	52.19			

One –way Anova was administered for inferential statistics to determine if there were any significant statistical differences amongst the students of the different districts in environmental attitude. The calculated F- ratio was 1.12 and at a significance level of 0.05 , it was found that there were no significant differences (p=0.346) among the students from different districts in environmental attitude.

Objective: 5

To assess and compare the awareness of college students in Nagaland towards environment

Table: 4.2.58

College authority participation in Environmental Awareness Activities

Items	No. of respondents	Percentage %
Yes	18	72%
No	0	0%
Sometime	7	28%

Table above show College authority participation in Environmental awareness activities as follows; responding of Yes is 72%, responding of No is 0%, responding of Some Time is28%.

Table: 4.2.59

Head of the Institutions in Utilization of recycling waste products

Items	No. of respondents	Percentage %
Yes	5	20%
No	10	40%
Sometime	10	40%

Table above show Head of the Institutions in utilization of recycling waste products as follows; responding of Yes is 20%, responding of No is 40%, responding of Some Time is 40%.

Table: 4.2.60

Awareness about healthy Environment in College Campus

Items	No. of respondents	Percentage %
No Smoking	25	100%
No Spitting on the Wall	23	92%
No Tobacco	23	92%

Table above show Awareness about healthy environment in college Campus as follows; No smoking responded is 100%, No spitting on the wall responded is 92%, and No tobacco responded is 92%.

Table: 4.2.61

Awareness about the cause of various diseases due to Environmental Destruction and Pollution

Items	No. of respondents	Percentage %
Yes	25	100%
No	0	0%
V**arious Diseases**		
Malaria	20	80%
Dengue Fever	19	76%
Bird flu	23	92%
Cholera	21	84%
Skin diseases	23	92%

Table above show Awareness about the causes of various diseases due to environmental destruction and pollution. 100% responded Yes0% responded No. Various Diseases;80% responded malaria,76% responded dengue fever, 92% responded bird flu, 84% responded

Cholera, and 92% responded skin diseases.

Table: 4.2.62

Teachers participation in Environmental Conservation and awareness

Items	No. of respondents	Percentage %
Yes	16	53%
No	4	14%
Cannot say	10	33%

Table above shows Environmental conservation as follows; 53% responded Yes,14% responded No, and 33% responded cannot say.

Table: 4.2.63

Teachers opinion about Student awareness towards environmental

Items	No. of respondents	Percentage %
Boys	4	14%
Girls	3	10%
Both	23	76%

Table above show Teachers opinion about Student awareness towards environmental education as follows; Boys responding is 14%, Girls responding is 10%, and Both responding is 76%.

Table: 4.2.64

Students Participation in creating awareness

Items	No. of respondents	Percentage%
Yes	264	36%
No	215	29%
Some Time	256	35%

Table above show students participation in creating awareness as follows; 36% responded Yes, 29% responded No, and 35% responded Some time.

Table: 4.2.65

Opinion of Students attitudes towards environmental education as a subject

Items	No. of respondents	Percentage %
It provide information and knowledge in environmental protection and preservation in students as responsible future citizen.	685	95%
It create awareness of how to use judiciously with available natural resources.	652	88%
It provide the needs and important in conservation of forest and wild life.	579	78%
It motivate to develop positive attitude and love the precious gifts of nature by God and preserving the beauty and richness of its flora and fauna.	694	94%

Table above show students attitude towards environmental education as a subject as follows; 95% responded that it provide information and knowledge in environmental protection and preservation in students as responsible future citizen, 88% responded that it create awareness of how to use judiciously with available natural resources, 78% responded that it provide the needs and important in conservation of forest and wild life. and 94% responded that motivate to develop positive attitude and love the precious gifts of nature by God and preserving the beauty and richness of its flora and fauna.

Table: 4.2.66

Students participation in Environmental awareness activities

Items	No. of respondents	Percentage%
Mass social works	673	92%
Mass cleanliness drives	213	29%
Mass tree plantations	307	42%

Table above show environmental awareness activities as follows; 92% responded mass social works, 29% responded mass cleanliness drives, and 42% responded mass tree plantations.

Table: 4.2.67

Problems in implementing/creating awareness of environmental education

Items	No. of respondents	Percentage%
Lack of subject teacher	20	80%
Shortages of text books	19	76%
Lack of teaching equipment/facilities	22	88%
Lack of financial resources	21	84%
Lack of teachers and students co-operation	15	60%

The above table show Head of the Institutions facing problems in implementing or creating awareness in their colleges about environmental education are as follows; 80% responded lack of subject teacher, 76% responded shortages of text books, 88% responded lack of equipment/ facilities, 84% responded lack of financial resources, and 60% responded lack of teachers and students co-operation.

Table: 4.2.68

Students Awareness about Healthy Environment in college campus

Items	No. of respondents of 'Yes'	Percentage %	No. of respondents of 'No'	Percentage %
No Smoking	663	91%	72	10%
No Spitting on the Wall	669	92%	65	9%
No Tobacco Chewing	671	92%	33	5%

Table above show awareness about healthy environment in college campus as follows; No Smoking 91% responded Yes and 10% responded No. No Spitting on the Wall 92% responded Yes and 9% responded No, and No Tobacco Chewing92%responded Yes and 5% responded No.

Table: 4.2.69

Types of mass media that create awareness on environment in students

Items	No. of respondents	Percentage
News Paper	596	82%
Magazine	567	78%
Journal	85	12%
Radio	0	0%
Television	39	6%
Computer	70	35%

Table above show types of mass medias as follows; 82% responded News Paper, 78% responded Magazine, 12% responded Journal, 0% responded Radio, 6% responded Television and 35% responded Computer.

Table: 4.2.70

Areas local community participated in creating environmental awareness

Items	No. of respondents	Percentage %
Cleanliness drives	175	87%
Mass social works	191	95%
Mass tree plantations	150	75%
Band of forest burning	184	92%
Proper drainage system	100	50%

Table above show areas local community participated in creating environmental awareness are as follows; 87% responded Cleanliness drives, 95% responded Mass social works, 75% responded Mass tree plantations, 92% responded Band of forest burning, 50% responded Proper drainage system.

Table: 4.2.71

Local communinty on mass environmental awareness programmes

Items	No. of respondents	Percentage %
Yes	50	30%
No	60	30%
Some Time	80	40%

Table above showlocal community on mass environmental awareness programmes as follows; 30% responded Yes, 30% responded No, and 40% responded some time.

Table: 4.2.72

Environmental Awareness Scale (A)

S.NO	DISTRICTS	MEAN	MODE	MEDIAN	STANDARD DEVIATION
1.	Dimapur	16.9	17.0	17.0	1.76
2.	Kiphere	16.2	16.0	16.3	2.10
3.	Kohima	16.4	16.0	15.0	2.01
4.	Longleng	16.9	18.0	17.6	1.57
5.	Mokokchung	16.6	16.0	16.3	2.20
6.	Mon	17.0	18.0	17.2	1.81
7.	Peren	15.1	13.0	15.0	3.93
8.	Phek	15.6	15.0	15.4	2.42
9.	Tuensang	16.2	17.0	18.7	2.16
10.	Wokha	18.8	18.0	17.7	2.14
11.	Zunheboto	16.4	19.0	16.9	2.36

The scale was developed and administered to study and compare the environmental knowledge or awareness of the college students in the study. The scores of the students from the 11 districts were calculated and performance of the students from the different districts were compared.

For the analysis of the Environmental Awareness Scale, descriptive and inferential statistics were used. For the former, mean, mode, median and standard deviation were calculated from the obtained data. They were all calculated for all the eleven districts as shown in the table Since the maximum score possible in the scale administered is 20, a mean score will have a value of 10.

a. The average mean of the total score was found to be 16.5. A score that is less or equal to 6 is considered low, 7- 13 is medium and 14-20 is high. A mean average score of 16.5 is indicative that score of the students; attitude towards environment is high. There are some differences in the mean of students from the different districts with Wokha district having the highest mean (18.8) and Peren having the lowest mean score(15.1). However their differences are not exceedingly large and the general score is quite high.

b. The mode is the score that occurs with the highest frequencies. The mode is highest for Zunheboto district with 19 and Peren district has the lowest with a score of 13. Most of the scores in mode for the different districts lie between 16 and 18.

c. The median of a distribution is the point along a scale of possible scores below which 50% of the score falls. It is less sensitive than mean to the presence of extreme scores. The scores of students from Wokha district had the highest median of 17.7 and Peren district with the lowest with a median score of 15. It means that for Wokha district, 17.7 is the point below which 50% of the scores lie, while for Peren district, 15 is the point below which 50% of the scores lie.

d. The standard deviation is a measure of variance and it is responsive to the exact position of every score in the distribution. The standard deviation is highest for Peren district with 3.93 and lowest for Kiphere district with 2.10. There are little differences in the standard deviations as well amongst the districts.

Table: 4.2.73

Environmental Awareness Scale (B)

SOURCE	SS	df	S^2	F	p	α
Between districts	73.6	10	7.86	1.51	0.134	0.05
Within districts	1551.2	319	4.86			

One –way Anova was administered for inferential statistics to determine if there were any significant statistical differences amongst the students of the different districts in environmental awareness. The calculated F- ratio was 1.51 and at a significance level of 0.05, it was found that there were no significant differences (p=0.134) among the students from different districts in environmental attitude.

Objective: 6

To bring out suggestions for creating positive attitude and awareness

Table: 4.2.74

Suggestions of the head of the institutions on the important of environmental education as a subject

Items	No. of respondents	Percentage %
It creates awareness among students in developing positive attitude towards environment.	18	72%
It provides knowledge and wisdom in protecting and preserving healthy environment.	22	88%
It help student to understand the ill effect of environmental destruction and pollution.	20	80%

Table above reveals the views and opinion of respondents that environmental education is an important subject for higher learning as; 72% responded that it create awareness among students in developing positive towards environment, 88% responded that it provides knowledge and wisdom in protecting and preserving healthy environment and 80% responded that it help students to understand the ill effects of environmental destruction and pollution.

Table: 4.2.75

The purpose of environmental education in colleges for students

Items	No. of respondents	Percentage %
Creating awareness programmers	21	84%
To inculcate positive attitude towards environment	23	92%
To develop civic sense of responsibilities	20	80%
Protection and preservation of forest and wild life to have balanced ecology	24	96%

The above table show views and opinion about purposes of environmental education in college for students are; 84% responded creating awareness programmes, 84% responded to inculcate positive attitude towards environment, 80% responded to develop civic sense of responsibilities, and 96% responded protection and preservation of forest and wild life to have a balanced ecology.

Table: 4.2.76

Opinion of upgrading environmental education in the state of Nagaland

Items	No. of respondents	Percentage %
Environmental Education as compulsory subject	19	76%
Creating environmental awareness	21	84%

Conducting mass social work	20	80%
Conducting mass tree plantation	23	92%
Conducting seminar and workshop	18	72%

The table above show opinion of upgrading environmental education in the state of Nagaland are as follows; 76% responded environmental education as compulsory subject, 84% responded creating environmental awareness, 80% responded conducting mass social work, 92% responded mass tree plantations, and 72% responded conducting workshop and seminar.

Table: 4.2.77

Ways and means suggested by Head of the Institutions

Items	No. of respondents	Percentage%
It should begin from the individual first.	20	80%
It should conduct environmental awareness programmed like seminar-cum-workshop, demonstration of ill effect of environmental destruction in educational institution.	21	84%
It should encourages students community to participate in environmental activities like cleanliness drive, mass social works, field study/mini project works on deforestations, soil-erosions, river water pollution, air pollution, and food pollution.	24	96%

The above table show the suggestions given by head of the institutions various ways and means in creating environmental awareness to the students in the state are as follows; 80% it should begin from the individual first, 84% it should conduct environmental awareness programmes like seminar, workshops, demonstration etc in educational institutions, 96% it should encourages students community to participate in environmental activities like cleanliness drives, mass social works, field study, mini-projects works on deforestations, soil erosions, rivers water pollutions, air pollutions and food pollutions.

Table: 4.2.78

Ways and Means in solving environmental issue and problems

Items	No. of respondents	Percentage %
Saving water	26	87%
Saving paper	15	50%
Stop cutting tree	26	87%
Proper burning of dustbins	28	94%
Stop burning forest	22	74%
Reducing use of plastic	28	94%

Table above shows Ways and means in solving environmental issue and problems as follows; Saving water responding is 87%, Saving paper responding is 50%, Stop cutting tree responding is 87%, Proper burning of dustbins is 94%, Stop burning forest responding is 74%, and Reducing use of plastic responding is 94%.

Table: 4.2.79

Teachers opinion to improve environmental education in the state

Items	No. of respondents	Percentage%
Trained teacher to be appointed for the subject	20	67%
Environmental education should be imparted at all stages of learning like primary, high school, higher secondary and university level.	23	77%
Framing of curriculum at all stages of learning should include environmental issues, problems, new challenges and need to protect and preserve from destruction and pollution.	28	93%
Proper fund allocation should be provided for mini-research project work by the central and state government.	25	83%

Table above show to improve environmental education in the state are as follows; 67% responded Trained teacher to be appointed for the subject, 77% responded Environmental education should be imparted at all stages of learning like primary, high school, higher secondary and university level. 93% responded Framing of curriculum at all stages of learning should include environmental issues, problems, new challenges and need to protect and preserve from destruction and pollution. and 83% responded Proper fund allocation should be provided for mini-research project work by the central and state government.

Table: 4.2.80

Teacher facing problems in teaching environmental education subject

Items	No. of respondents	Percentage %
Yes	15	50%
No	15	50%
Reason problems face by teachers		
Lack of subject teacher	10	33%
Lack of skill trained teacher	7	23%
Shortages of textbooks	8	26%
Lack of financial resources	6	20%
Lack of teaching aids/ equipment/facilities	10	33%

Table above show problems face in teaching environmental education are as follows; 34% responded Yes, 67% responded No, Reason problems face by teachers: 33% responded Lack of subject teacher, 23% responded Lack of skill trained teacher, 26% responded shortages of text books, 20% responded Lack of financial resources, and 33% responded Lack of teaching Aids or equipment/facilities.

Table: 4.2.81

Teachers opinion on students for better understanding of environmental education in the state

Items	No. of respondents	Percentage%
Teachers as role model of environmentalist for students.	25	83%
Use of audio-visual projectors inside classroom to arouse interest in the students.	20	67%
Conducting seminar and workshop on the issues and problems on the ill effect of environmental destruction and pollution causes by human activities for development.	26	87%
Students should be encouraged to participate in environmental activities like cleanliness drive, mass social works, protection and preservation of environment from destruction and pollution.	25	83%

Table above show Teachers opinion on students for better understanding of environmental education in the state are as follows; 83% responded Teachers as role model of environmentalist for students, 67% responded Use of audio-visual projectors inside classroom to arouse interest in the students, 87% responded Conducting seminar and workshop on the issues and problems of ill effect of environmental destruction and pollution causes by human activities for development, 83% Students should be encourage to participate in environmental activities like cleanliness drive, mass social works, protection and preservation of environment from destruction and pollution.

Table: 4.2.82

Opinion of teachers to improve awareness towards environmental education

Items	No. of respondents	Percentage%
Teachers as a role model of environmentalist for students.	25	83%
Environmental guidance and counseling cell for students in educational institutions.	15	50%

Environmental education subject should be job oriented.	20	67%
Opportunities be provided to students through study tour, skill training and college exchange programmes.	21	70%

Table above show Opinion of teachers to improve awareness towards environmental education are as follows; 83% responded Teachers as a role model of environmentalist for students, 50% responded Environmental guidance and counseling cell for students in educational institutions, 67% responded Environmental education subject should be job oriented, and 70% responded Opportunities be provided to students through study tours, skill training and college exchange programmes.

Table: 4.2.83

Suggestions to improve student attitude towards environmental education

Items	No. of respondents	Percentage%
Qualified subject teacher be appointed	675	91%
Subject expert be invited in college environmental seminar and workshop	652	88%
College campus should be kept clean, green, and free from pollution.	583	79%
Mass social works	672	91%
Tree plantations	487	66%
Availability of environmental text books, journals, magazine.	687	93%

Table above show suggestion to improve students attitude towards environmental education as follows; 91% responded Qualified subject teacher be appointed, 88% responded Subject expertbe invited in college environmental seminar and workshop, 79% responded College campus should be kept clean, green, and free from pollution, 91% responded Mass social

works, 66% responded Tree plantations, 93% responded Availability of environmental text books, journals, magazine.

Table: 4.2.84

Creating awareness about healthy environment

Items	No. of respondents	Percentage%
Inculcating positive attitude in students.	684	93%
Keeping college surrounding clean and hygienic free from pollution.	667	90%
Student participation in environmental seminar and workshop.	336	45%
Fund allocation for organizing environmental activities and programs.	238	32%
Teachers and students should be allowed to participate in mass social works, tree plantations, forest protections, waste management, recycle waste products.	625	85%
A good library availability of environmental text books, journals, and magazine for students and teachers.	589	80%

Table above show creating awareness about healthy environment as follows; 93% responded Inculcating positive attitude in students, 90% responded Keeping college surrounding clean and hygienic free from pollution, 45% responded Student participation in environmental seminar and workshop, 32% responded Fund allocation for organizing environmental activities and programmes, 85% responded Teachers and students should be allowed to participate in mass social works, tree plantations, forest protections, waste management, recycle waste products, 80% responded A good library availability of environmental text books, journals, and magazine for students and teachers.

Table: 4.2.85

Steps taken to protect forest and wild life in local areas

Items	No. of respondents	Percentage %
Putting up environmental sign board.	143	71%
Imposing fine to the environmental defaulter.	175	87%
Rules and regulations were made on forest and wild life protection.	166	83%
Prohibition of hunting	173	86%
Prohibition of burning forest	180	90%
Planting tree once the tree is cut down for firewood.	163	81%

Table above show steps taken to protect forest and wild life in local areas as follows; 71% responded putting up environmental sign board, 87% responded imposing fine to the environmental defaulter, 83% responded Rules and regulations were made on forest and wild life protection, 86% responded Prohibition of hunting, 90% responded Prohibition of burning forest, 81% responded Planting tree once the tree is cut down for fire woods.

Table: 4.2.86

Developing awareness programmes for local community towards environmental protections

Items	No. of respondents	Percentage%
To create environmental awareness	186	93%
Inculcating civic sense of waste disposals	170	85%
Tree plantations	185	92%
Stop burning forest	175	87%
Encourage buying eco-friendly products	150	75%
Conducting environmental seminar and workshop	170	85%

Table above show developing awareness towards environmental protection as follows; 93% responded To create environmental awareness, 85% responded Inculcating civic sense of waste disposals, 92% responded Tree plantations, 87% responded Stop burning forest, 75% responded Encourage buying eco-friendly products, and 85% responded Conducting environmental seminar and workshop.

Table: 4.2.87

Creating environmental awareness to the mass local community

Items	No. of respondents	Percentage%
Cleanliness drives	183	91%
Proper waste disposal	174	87%
Mass tree plantation	150	75%
Proper drainages system	167	85%
Use audio visual environmental films in creating awareness	133	66%
Conducting environmental seminar and workshop	144	72%

Table above show creating environmental awareness to the mass local community as follows; 91% responded Proper waste disposal , 87% responded Proper waste disposal , 75% responded Mass tree plantation , 85% responded Proper drainages system, 66% responded Use audio visual environmental films in creating awareness, 72% responded Conduct seminar and workshop.

CHAPTER – V
MAJOR FINDINGS AND SUGGESTIONS

5.1 INTRODUCTION

This chapter deals with major findings, suggestions and conclusion on the basis of analysis and interpretation of data collected through administration of questionnaires and interview schedules, which were analyzed and interpreted employing appropriate statistical measures. Along with the interview schedules and questionnaires, and environmental awareness scale and environmental attitude scale were developed to study and compare the environmental awareness and attitude of the college students from the different (11) districts of Nagaland. Separate scales were developed for awareness and attitudes were developed for the purpose of clarity in the research findings. They were developed after consultation of related literatures and experts in the field. The investigator has come to the conclusion with the following findings.

5.2 MAJOR FINDINGS OF THE STUDY THROUGH THE USE OF QUESTIONNIARES AND INTERVIEW; AND USE OF ATTITUDE AND AWARENESS SCALE

OBJECTIVE: 1

To study the programmes in Nagaland about Environmental Education

1. The study reveals that Environmental Education included in the curriculum of Higher Education; Environmental education is 100%, As elective subject responded of is 100%, and as compulsory subject is 100% .

2. It was found that 36% has Environmental Education subject teacher and 64% still needed subject teachers.

3. It was observed that programmes/areas college authority organized on environmental activities are as follows: 80% regular classroom teaching, 92% field study, 60% personal hygiene, 72% Cleanliness, 84% Mass social works, 80% Tree plantations, and 84% seminar and workshops.

4. The study saw that 60% conduct programmes on environmental guidance and counseling in colleges, 40% were still yet to implement, 50% National Service Scheme (NSS), 33%classroom discussion, 23% seminar and workshop.

5. The study found that 100% Colleges having environmental education as a subject.

6. The study revealed that 66% say Syllabus was effectiveness in developing awareness for students. 14% say it was not effective for students, and 20% was in unresponsive/neutral.

7. The study saw Teachers participations in Celebrations of important International Environmental Day in colleges as follows; World Earth Day is 40%, World Environmental Day is 90%, World Population Day is 17%, World Forest Day is 14%, World Health Day is 14%, World Consumer Day is 20%, and World AID's Day is 77%.

8. It was found that 33% of the Teachers participated in Protection and preservation of forest and wild life and 67% did not participate. Reason for not participation; 26% Lack of awareness, 20% Lack of financial resources, and 30% Lack of direction from the higher authority.

9. Study reveals that teachers contribution in controlling and checking of environmental pollution and preservation are as follows; 67% Teacher as role model of environmentalist, 60% responded as Skill training, 67% responded as Organize awareness programmes, 77% Participate cleanliness drives, 77% Mass social work, 60% Tree plantation, 67% Proper waste disposal, 80% Buy eco-friendly products , and 70% Conducting seminar and workshop.

10. The study saw different types of environmental guidance and counseling provided by teacher to students as follows; 83% Educating students about the issues and problems of social, economic, political and health, as environment

play its role for better performances. 90% Students are encourages to participate in various environmental activities like, cleanliness drive, mass social works, tree plantations, use re-usable materials, and buy eco-friendly products, 87% Encouraged students to initiate and participate in protection and preservation of forest, wildlife and endanger species in their local areas.

11. It was found that areas students participated in environmental education as follows; 95% Observing World Environmental Day, 28% Cleanliness drives, 91% Mass social works, 41% Tree plantations , 77% Proper waste disposal, 93% Field study, and 65% Attending environmental seminar and workshop.

12. The study saw celebrations of International Environmental Day as follows; 10% celebration of World Earth Day, 96% celebration of World Environmental Day, 3% celebration of World Forest Day, 7% celebration of World Health Day, 5% World Population Day, and 33% celebration of World AID's Day.

13. The study revealed that Minor research studies were conducted by teachers as follows; 10% Yes, and 90% No. Reason for not conducting minor research studies by teachers; 67% Lack of time, 50% Lack of Knowledge, and 50% Lack of financial resources.

14. The study found problems in learning environmental education as a subject as follows; 40% some time, 8% often, and 52% Never. Reason for students facing problems in learning environmental education subject; 45% Lack of subject teacher, 44% Shortage of text books, journal and magazine, 40% Lack of environmental seminar and workshop, 34% Lack of co-operation between teacher and student.

15. The study reveals that 92% has Knowledge on importance of environmental education in students and 8% still needed to know the importance of environmental education. Reason on importance of environmental education; 75% Developing positive attitude, 64% Create environmental awareness, 89%

Sustainable method of using natural resources, 81% Provide knowledge of ecological balanced.

OBJECTIVE: 2

To study the effort of local communities with regard to environmental Education

16. The study showed local communities on mass environmental awareness programmes are as follow; 30% Yes, 30% No and 40% some times.

17. It was observed that 30% of local community has mass environmental awareness programmes, 30% still unaware of environmental important, and 40% some time; 48% saw environmental awareness created by NGO's/ Government Organization and 52% were still needed.

18. The study revealed that 100% permitted by Head of the Institutions to teachers and students to participate with local communities in environmental conservation.

19. The study found that college authority participated in creating environmental awareness for local community as follows; 32% used of Environmental post-card, 40% used of Environmental bill board, and 28% used of Dramas on environmental problems.

20. The study show 68% of local community had the knowledge about environmental importance and 33% were still in need of Environmental education.

21. The study revealed that the areas local community participated in creating environmental awareness are as follows; 87% Cleanliness drives, 95% Mass social works, 75% Mass tree plantations, 92% Band of forest burning, 50% Proper drainage system.

22. The study shows 34% utilization of waste management 36% No, and 30% cannot say.

23. The study found that local community participated in environmental activities are as follows; 94% mass social works,54% mass cleanliness drives, and 25% mass tree plantation.

24. The study revealed and show need for conservation of bio-diversity as follows; The need to lead more sustainable life styles; 41% Yes, 24% No, and 35% cannot say. The need to use natural resources in more equitable manner; 52% Yes, 24% No, and 33% cannot say.

25. The study show diseases caused through environmental destruction and pollution as follows; 86% Malaria, 61% Typhoid, 40% Cholera, 37% Asthma, 75% Viral Fever, and 55% Influenza.

26. The study found that 49% of local communities participated in reserve forest and wild life protection and 51% No.

27. The study observed that preventive measure to control and check environmental pollution and preservation as follows; 92% Cleanliness drives, 96% Mass social works, 79% Mass tree plantation, 50% Construction of proper common waste disposal, and 50% Maintenance of proper drainage system.

28. The study revealed that local community participated in environmental activities as follows; 50% Saving trees, 75% Tree plantation, 17% Recycle waste production, 43% Conservation of forest area, 13% Buy eco-friendly products.

29. The study found that 68% practicing jhum cultivation and 32% No.

30. The study observed that 44% local communities plants sapling after jhum cultivation is done and 56% No. Reasons for planting sapling after jhum cultivation is done; 37% to re-nourish the soil, 39% to prevent soil erosion. Reasons for not planting trees after jhum cultivation was done; 40% lack of awareness, 35% lack of nursery tree sapling.

31. The study shows that environmental protection and conservation is necessary for human being as follows; 90% to have a healthy life, free from various diseases, 83% to have free from air, water, and food pollution, and 76% to keep alive the beauty of natural flora and fauna.

32. It was observed that effects of climate change in the locality as follows; 91% Scarcity of water, 89% Rise in temperature, 50% Drought, 88% Scarcity of rainfall, and 50% Health hazard.

33. The study revealed that problems faced in creating awareness for healthy environment by local community workers as follows; 25% Lack of awareness and Ignorance, 62% Lack of knowledge and information, and 17% Lack of follow-up programmes.

OBJECTIVE: 3

To study the programmes of environmental education offered by colleges

34. The study found that college authorities allowed Student to participate in environmental activities as follows; Mass social work is 100%, Mass cleanliness drive is 96%, and Mass tree plantation is 80%.

35. The study revealed that teachers participation in different Kinds of environmental studies/ projects. Soil erosion; Yes is 50%, No is 13%, Never is 17%, and Some time is 20%. Field trip study; Yes is 57%, No is 10%, Never is 10% and some time is 24%. Study on deforestation; Yes is 57%, No is 0%, Never is 0%, and Some time is 44%. Study on river pollution; Yes is 64%, No is 14%, Never is 10%, and Some time is 14%.

36. It was observed that Minor research studies conducted by teachers as follows; 10% Yes, and 90% No. Reason for not conducting minor research studies by teachers; 67% Lack of time, 50% Lack of Knowledge, and 50% Lack of financial resources.

37. The study showed problems in participating environmental activities by students as follows; 18% Yes, 82% No. Reason and problems of students in participating environmental activities; 14% Lack of awareness, 16% Lack of good leadership, 11% Lack of co-operation among teachers and students.

38. The study found teachers participation in environmental conservation are as follow; 60% Yes, 16% No and 24% some time.

39. The study revealed teachers views about environmental education as subject at higher learning are as follows; 50% As compulsory subject, and 50% that Skills training for students to protects and preserve environment from destruction and pollution.

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40. The study show the purpose of environmental education are as follows; 67% as compulsory subject, 73% to create awareness in students, 67% to develop positive attitude in students , and 70% to understand the bio-diversity and have balanced eco-system.

41. The study observed that environmental activities conducted by teachers as follows; 67% Mass cleanliness drive, 67% Mass social works, 60% Tree plantations, 70% Proper waste disposal, 73% Buy eco-friendly products, 67% Conducting field study, and 67% Conducting seminar and workshops.

42. It has been found that 100% of college had environmental education as a subject.

43. The study show that 53% had environmental education subject teachers and 47% still needed a subject teachers as responded by students.

44. The study revealed that utilization of waste management by students as follows; 22% Yes, 49% No, and 29% some time.

45. The study found that syllabus effectiveness in creating environmental awareness for students as follows; 84% Yes, 6% No, and 10% cannot say.

46. The study observed that students participation of environmental conservation as follows; 51% Yes, 23% No, and 26% some time.

47. The study show that students participate in environmental activities as follows; 94% Mass cleanliness drives, 78% Mass social works, 58% Tree plantations, 48% Buy eco-friendly products, 55% Proper waste disposal, 44% Participating in environmental seminar and workshop, and 71% Field Study.

48. The study revealed that effectiveness of syllabus for students were as follows; 44% Yes, and 54% No. Reason 27% Farming of curriculum basing on the need and aspiration of present society, 27% Skill training in environmental protection and preservation should include in the syllabus said by students.

OBJECTIVE: 4

To study and compare the attitude of higher education students in Nagaland towards Environment

49. The study revealed College authorities attitude towards forest and wildlife preservation and protection as 100% positive.

50. The study showed student attitude with academic achievement towards environment as 64% Yes and 36% No.

51. The study revealed level of students attitude with academic achievement towards environment; 50% Higher achiever, 50% Average achiever, and 0% Below achiever said by teachers.

52. The study found Teachers views about Students interest towards environmental education subject are as follows; Yes are 80%, No are 10%, and Cannot say are 10%.

53. The study observed Teachers view about Student attitude towards environmental education were Boys are 15%, Girls are 10%, and Both are 75%.

54. The study showed Students attitude towards environmental education as follows; 80% Positive, 5% Negative, and 15% Neutral.

55. The study revealed local community attitude towards environment as follows; 39% positive, 18% negative, and 43% neutral.

56. Scale was developed and administered to study and compare the environmental attitude of the college students in the study. The scores of the students from the 11 districts were calculated and performance of the students from the different districts were compared. For the analysis of the Environmental Attitude Scale, descriptive and inferential statistics were used. For the former, mean, mode, median and standard deviation were calculated from the obtained data. They were all calculated for all the eleven districts as shown in the table Since the maximum score possible in the scale administered is 110, a mean score will have a value of 55. The average mean of the total score was found to be 90.5. a score that is less or equal to 36 is considered low, 37- 73 is medium and 74-110 is high.

    a. A mean average score of 90.5 is indicative that score of the students; attitude towards environment is high. There are some differences in the mean of students from the different districts with Kohima district having the highest mean (92.5) and Mon having the lowest mean score(87.9). However their differences are not exceedingly large and the general score is quite high. The mode is the score that occurs with the highest frequencies.

    b. The mode is highest for Dimapur district with 98.5 and Peren district has the lowest with 80.5. most of the scores in mode for the different districts lie between 90 to 94.

    c. The median of a distribution is the point along a scale of possible scores below which 50% of the score falls. It is less sensitive than mean to the presence of extreme scores. The scores of students from Kohima district had the highest median of 93.2 and Mon district with the lowest with a

median of 85.5. it means that for Kohima district, 93.2 is the point below which 50% of the scores lie, while for Mon district, 85.5 is the point below which 50% of the scores lie.

d. The standard deviation is a measure of variance and it is responsive to the exact position of every score in the distribution. The standard deviation ids highest for Zunheboto district with 9.8 and lowest for Wokha district with 5.2. Most of the standard deviation scores amongst the district lie between 6 and 7. There are little variations in the standard deviations as well amongst the districts.

57. One –way Anova was administered for inferential statistics to determine if there were any significant statistical differences amongst the students of the different districts in environmental attitude. The calculated F- ratio was 1.12 and at a significance level of 0.05 , it was found that there were no significant differences (p=0.346) among the students from different districts in environmental attitude.

OBJECTIVE: 5

To assess and compare the awareness of the college students towards Environmental Attitude and Awareness

58. The study showed that college authorities participation in Environmental awareness activities as follows; Yes is 72%, No is 0%, Some Time is 28%.

59. It has been found that Head of the Institutions in utilization of recycling waste products as follows; Yes is 20%, No is 40%, Some Time is 40% **.**

60. The study revealed that Awareness about healthy environment in college Campus as follows; No smoking is 100%, No spitting on the wall is 92%, and No tobacco is 92%.

61. The study observed that Awareness about the causes of various diseases due to environmental destruction and pollution. 100%, Yes, 0% No. Various

Diseases;80% malaria,76% dengue fever, 92% bird flu, 84% Cholera, and 92% skin diseases.

62. The study revealed teachers participation in environmental conservation as follows; 53% Yes, 14% No, and 33% cannot say.

63. The study show teachers opinion about Student awareness towards environmental education as follows; Boys is 14%, Girls is 10%, and Both is 76%.

64. It has been found that students participating in creating awareness as follows; 36% Yes, 29% No, and 35% Some time.

65. The study revealed that students attitude towards environmental education as a subject as follows; 95% it provide information and knowledge in environmental protection and preservation in students as responsible future citizen, 88% it create awareness of how to use the available natural resources judiciously, 78% it provides the need and importance in conservation of forest and wild life. and 94% motivate to develop positive attitude and love the precious gifts of nature by God and preserving the beauty and richness of its flora and fauna.

66. The study observed environmental awareness activities as follows; 92% mass social works, 29% mass cleanliness drives, and 42% mass tree plantations.

67. The study show Head of the Institutions facing problems in implementing or creating awareness in their colleges about environmental education are as follows; 80% lack of subject teacher, 76% shortages of text books, 88% lack of equipment/ facilities, 84% lack of financial resources, and 60% lack of teachers and students co-operation.

68. The study showed awareness about healthy environment in college campus as follows; No Smoking 91% Yes and 10% No, No Spitting on the Wall 92% Yes and 9% No, and No Tobacco Chewing92% Yes and 5% No.

69. The study revealed types of mass medias as follows; 82% News Paper, 78% Magazine, 12% Journal, 0% Radio, 6% Television and 35% responded Computer.

70. The study observed that local area community participated in creating environmental awareness are as follows; 87% Cleanliness drives, 95% Mass social works, 75% Mass tree plantations, 92% Band of forest burning, 50% Proper drainage system.

71. The study found that local communities providing mass environmental awareness programmes as follows; 30% Yes, 30% No, and 40% some time.

72. The scale was developed and administered to study and compare the environmental knowledge or awareness of the college students in the study. The scores of the students from the 11 districts were calculated and performance of the students from the different districts were compared. For the analysis of the Environmental Awareness Scale, descriptive and inferential statistics were used. For the former, mean, mode, median and standard deviation were calculated from the obtained data. They were all calculated for all the eleven districts as shown in the table Since the maximum score possible in the scale administered is 20, a mean score will have a value of 10. The average mean of the total score was found to be 16.5. A score that is less or equal to 6 is considered low, 7- 13 is medium and 14-20 is high.

a. A mean average score of 16.5 is indicative that score of the students; attitude towards environment is high. There are some differences in the mean of students from the different districts with Wokha district having the highest mean (18.8) and Peren having the lowest mean score(15.1). However their differences are not exceedingly large and the general score is quite high.

b. The mode is the score that occurs with the highest frequencies. The mode is highest for Zunheboto district with 19 and Peren district has the lowest with a score of 13. Most of the scores in mode for the different districts lie between 16 and 18.

c. The median of a distribution is the point along a scale of possible scores below which 50% of the score falls. It is less sensitive than mean to the presence of extreme scores. The scores of students from Wokha district had the highest median of 17.7 and Peren district with the lowest with a median score of 15. It means that for Wokha district, 17.7 is the point below which 50% of the scores lie, while for Peren district, 15 is the point below which 50% of the scores lie.

d. The standard deviation is a measure of variance and it is responsive to the exact position of every score in the distribution. The standard deviation ids highest for Peren district with 3.93 and lowest for Kiphere district with 2.10. There are little differences in the standard deviations as well amongst the districts

73. One –way Anova was administered for inferential statistics to determine if there were any significant statistical differences amongst the students of the different districts in environmental awareness. The calculated F- ratio was 1.51 and at a significance level of 0.05, it was found that there were no significant differences (p=0.134) among the students from different districts in environmental attitude.

OBJECTIVE: 6

To provide suggestions for creating positive Environmental Attitude and Awareness

74. The study reveals the views and opinion of respondents that environmental education as an important subject for higher learning as; 72% it create awareness among students in developing positive towards environment, 88% it provide knowledge And wisdom in protecting and preserving healthy environment and 80% it help students to understand the ill effect of environmental destruction and pollution.

75. The study showed views and opinion about purpose of environmental education in college for students are; 84% creating awareness programmes, 84% to inculcate positive attitude towards environment, 80% to develop civic sense of

responsibilities, and 96% protection and preservation of forest and wild life to have a balanced ecology.

76. The study found the opinion of upgrading environmental education in the state of Nagaland are as follows; 76% environmental education as compulsory subject, 84% creating environmental awareness, 80% conducting mass social work, 92% mass tree plantations, and 72% conducting workshop and seminar.

77. The study revealed suggestions given by head of the institutions various ways and means in creating environmental awareness to the students in the state are as follows; 80% felt that it should begin from the individual first, 84% felt that it should conduct environmental awareness programmes like seminar, workshops, demonstration etc in educational institutions, 96% felt that it should encourage students community to participate in environmental activities like cleanliness drives, mass social works, field study, mini-projects works on deforestation, soil erosion, rivers water pollution, air pollution and food pollution.

78. The study shows teachers suggesting ways and means in solving environmental issue and problems as follows; Saving water is 87%, Saving paper is 50%, Stop cutting tree is 87%, Proper burning of dustbins is 94%, Stop burning forest is 74%, and Reducing use of plastic is 94% .

79. The study revealed that in order to improve environmental education in the state are as follows; 67% Trained teacher to be appointed for the subject, 77% Environmental education should be imparted at all stages of learning like primary, high school, higher secondary and university level. 93% Farming of curriculum at all stages of learning should include environmental issues, problems, new challenges and need to protect and preserve from destruction and pollution. and 83% Proper fund allocation should be provided for mini-research project work by the central and state government.

80. The study found the problems faced in teaching environmental education are as follows; 50% Yes, 50% No, Reason problems faced by teachers: 33%

responded Lack of subject teacher, 23% Lack of skill trained teacher, 26% shortages of text books, 20% Lack of financial resources, and 33% Lack of teaching Aids or equipment/facilities.

81. The study showed Teachers opinion on students for better understanding of environmental education in the state are as follows; 83% Teachers as role model of environmentalist for students, 67% Use of audio-visual projectors inside classroom to arouse interest in the students, 87% Conducting seminar and workshop on the issues and problems of ill effect of environmental destruction and pollution causes by human activities for development, 83% Students should be encouraged to participate in environmental activities like cleanliness drive, mass social works, protection and preservation of environment from destruction and pollution.

82. The study revealed the Opinion of teachers to improve awareness towards environmental education are as follows; 83% Teachers as a role model of environmentalist for students, 50% Environmental guidance and counseling cell for students in educational institutions, 67% Environmental education subject should be job oriented, and 70% Opportunities be provided to students through study tours, skill training and college exchange programmes.

83. The study showed students suggestion to improve students attitude towards environmental education as follows; 91% Qualified subject teacher be appointed, 88% Subject expert be invited in college environmental seminar and workshop, 79% College campus should be kept clean, green, and free from pollution, 91% Mass social works, 66% Tree plantations, 93% Availability of environmental text books, journals, magazine.

84. The study revealed about creating awareness about healthy environment as follows; 93% Inculcating positive attitude in students, 90% Keeping college surrounding clean and hygienic free from pollution, 45% Student participation in environmental seminar and workshop, 32% Fund allocation for organizing environmental activities and programmes, 85% Teachers and students should be

allowed to participate in mass social works, tree plantations, forest protections, waste management, recycle waste products, 80% A good library availability of environmental text books, journals, and magazine for students and teachers.

85. The study show steps taken to protect forest and wild life in local areas as follows; 71% putting up environmental sign board, 87% imposing fine to the environmental defaulter, 83% Rules and regulations were made on forest and wild life protection, 86% Prohibition of hunting, 90% Prohibition of burning forest, 81% Planting sapling once the tree is cut down for firewood.

86. The study found that developing awareness towards environmental protection as follows; 93% To create environmental awareness, 85% Inculcating civic sense of waste disposals, 92% Tree plantations, 87% Stop burning forest, 75% Encourage buying eco-friendly products, and 85% Conducting environmental seminar and workshop.

87. The study showed creating environmental awareness to the mass local community as follows; 91% cleanliness drive , 87% Proper waste disposal , 75% Mass tree plantation , 85% Proper drainages system, 66% Use audio visual environmental films in creating awareness, 72% responded Conduct seminars and workshops.

5.2 ANALYTICAL OVERVIEW AND JUSTIFICATION FOR THE PRESENT STUDY

Shahmawaj, 1990. Environmental awareness and environmental attitude of secondary and higher secondary school teachers and students towards the environment. It was found that 95 teachers and 945 students possessed positive environmental attitudes. The environmental trained teachers and trained teachers did not differ in their attitudes. Girls possessed significantly more awareness of environment than boys.

The study observed Teachers view about Student attitude towards environmental education as follows; Boys 15%, Girls 11%, and Both 74%.The study revealed College authority attitude towards forest and wildlife preservation and protection are 100% positive, The

study showed student attitude with academic achievement towards environment. Very high is 0%, High is 30%, Average is 64%, and Below average is 6%.The study revealed level of students attitude with academic achievement towards environment; 50% Higher achiever, 50% Average achiever, and 0% Below achiever said by teachers. The study found Teachers views about Students interest towards environmental education subject are as follows; Yes 80%, No 10%, and Cannot say 10%.The study showed Students attitude towards environmental education as follows; 81% responded Positive, 5% responded Negative, and 15% responded Neutral.

Agrawal, S.P., Aggrawal, J.C., 1996, Environmental Awareness and Status**.** True education can play an important role in promoting higher values of life, but task does not seem to be an easy one when there is all round deterioration of moral standards. The need of the hour is that leaders and specially those who hold power should set good example.

The study revealed about creating awareness about healthy environment as follows; 93% Inculcating positive attitude in students, 90% Keeping college surrounding clean and hygienic free from pollution, 45% Student participation in environmental seminar and workshop, 32% Fund allocation for organizing environmental activities and programmes, 85% Teachers and students should be allowed to participate in mass social works, tree plantations, forest protections, waste management, recycle waste products, 80% A good library availability of environmental text books, journals, and magazine for students and teachers.The study show creating environmental awareness to the mass local community as follows; 91% Proper waste disposal , 87% Proper waste disposal , 75% Mass tree plantation , 85% Proper drainages system, 66% Use audio visual environmental films in creating awareness, 72% responded Conduct seminars and workshops.

Kelly, Christine, M., 1996. Understanding our sensitivity to the natural environment. As the participant define their environmental beliefs and responses as pro-or-anti environmental areas superficial or satisfactory; their ability and effort to address environmental issues ; their perceive control over changing that which they contributed to the causes of environmental values are formulated to match their personal self-concepts.

The study shows teachers suggestions ways and means in solving environmental issue and problems as follows; Saving water is 87%, Saving paper is 50%, Stop cutting tree is 87%,

Proper burning of dustbins is 94%, Stop burning forest is 74%, and Reducing use of plastic is 94% .

Berkely, 1996. Achieving Public Health goals at hazardous waste sites: uses and limitation of risk assessment in a community context, Kyle, Amy, Dale. Consideration of community health concerns did lead to identification of localized exposures that were significant in some communities consideration of health outcome data did not result in significant findings. Better co-ordination of site investigation of specialized exposures would improve the process.

The study observed that Awareness about the causes of various diseases due to environmental destruction and pollution. 100%, Yes, 0% No. Various Diseases;80% malaria,76% dengue fever, 92% bird flu, 84% Cholera, and 92% skin diseases. The study show that awareness about healthy environment in college campus as follows; No Smoking 91% Yes and 10% No, No Spitting on the Wall 92% Yes and 9% No, and No Tobacco Chewing92% Yes and 5% No.

James, E., 1996. An assessment of attitudes, knowledge and beliefs of global warming**.**The finding of the study have implications for environmental education, students, secondary school teachers, parents and decision makers.

It was observed that effects of climate change in the locality as follows; 91% Scarcity of water, 89% Rise in temperature, 50% Drought, 88% Scarcity of rainfall, and 50% Health hazard.The study reveal that 92% have Knowledge of important of environmental education in students and 8% still need to know the important of environmental education. Reason of important of environmental education; 75% Developing positive attitude, 64% Create environmental awareness, 89% Sustainable method of using natural resources, 81% Provide knowledge of ecological balanced.

Franklin Edward Albert, 2000. No significant differences were found in environmental attitudes between groups although females scored higher than males. No correlation was found between knowledge and attitudes assessment scores. Forest Institute for Teacher (FIT)

Participants integrates Environmental Education (EE) into curriculum for a number of reasons.

The study show steps taken to protect forest and wild life in local areas as follows; 71% putting up environmental sign board, 87% imposing fine to the environmental defaulter, 83% Rules and regulations were made on forest and wild life protection, 86% Prohibition of hunting, 90% Prohibition of burning forest, 81% Planting tree once the tree is cut down for firewood.

Sikinyi, 2003. The role of the bio sciences and biotechnology in agricultural education in the secondary school agriculture curriculum as perceived by agriculture educators**.** Findings indicated that secondary school educators in the North Central Region of the United State were mainly middle age and predominantly male. The instructor believed that by integrating the sciences into curriculum they could prepare their students better for feature employment opportunities in science and technology, which is as rapidly expanding industry.

The study revealed teachers views about environmental education as subject at higher learning are as follows; 50% As compulsory subject, and 50% that Skills training for students to protects and preserve environment from destruction and pollution

5.4 SUGGESTIONS AND EDUCATIONAL IMPLICATIONS OF THE PRESENT STUDY

The following were educational implication of environmental education:

1. To be aware about the need to conserve bio-diversity, the need to lead more Sustainable life styles and the need to use resources more equitability.
2. Need to change our attitude towards our environment by using a practical approach base on observation and self-learning.
3. The need to create a concern for our environment that will trigger pro-environmental in our daily life to protect it.

4. To make aware that environmental problem is to deal with every issue that affects a living organism.

5. Environmental problem and climate change has become increasingly a concern for us. Unsustainable utilization can result from over use of resources, because many of us are using more resources than we really need.

6. The multiple effects on the environment resulting from routine of human activities must be understood with the natural resources if we need in long-term.

7. Growing more food by using fertilizers and pesticides, developing better strains of domestic animals and crops for rapid economic development. It also has to make aware of the ill-effect of which ultimately leads to environmental degradation.

8. To understand the mountain ecosystems are extremely fragile, as the degradation of forest cover leads to severe soil erosion and changes in river courses.

9. To be aware that ecological degradation has been frequently damaged for the needs of fuel wood and fodder for growing number of population in rural and urban areas; the rich and the industrial sector being responsible for causing greater ecological damage.

10. To change the attitude not to smoke in public places. It is illegal and endangers not only your own health but also that of others.
11. To be aware that coughing can spread bacteria and viruses. Use handkerchief to prevent droplet, infection which is airborne, as it endangers the health of other people.

12. All good citizens must learn to act as a watch dogs to protect their own environment from the consequences of unsustainable projects around them. Well informed citizens not only have rights but also have a duty to perform in this regard.

13. Human societies will be seriously affected by extremes climate such as droughts and floods. To a large extent, public health depends on safe drinking water, sufficient food, secure shelter, and good social condition. These entire factors are affected by climate change.

14. Soil erosion is a natural process, often caused by wind and flowing water, it is greatly accelerated by human activities such as farming construction, over grazing by live stock, burning of grass cover and deforestation.

15. The quality of fertilizers applied in a field is often many times more than is actually requires by the plants. The chemicals in fertilizers and pesticides pollute the soil and water.

16. The increasing demands of consumption on the finite resources of the planet, increasing level of environmental pollution, and the problems of waste disposal must be changed to a careful utilization of resources, recovery of used material by waste recycling.

17. Every community should organize extensive programs on education and demonstration on the reduction of waste and proper disposal and effective reutilization of waste material. People should be informed of the need for waste management to protect the quality of environment. This should be included in the curriculum at schools and colleges level.

18. Several environmental ill-effects were linked with the increasing population of the developing world. Poverty alleviation programs fails, as whatever was done was never enough as more people had had to be supported on earth's limited resources.

19. Value in environmental education must bring in several new concepts, issues which are linked to the quality of human life and go beyond simple economic growth, they must deal with love and respect for nature. The value that will bring about a better humanity, in which we can live healthy, productive and happy lives in harmony with nature.

5.5 SUGGESTIONS FOR FUTURE RESEARCH

The following were suggestions for future research;

1. A study on various environmental issues and concerns of national and global importance.

2. A study on the need to conserve bio-diversity and need to lead a sustainable life style in Nagaland.

3. A study on the relationship between environment and development.

4. A study on the impact of agricultural practices over a period of time in a given locality or village on local environment.

5. A study on sustainable development vis-à-vis improvement of quality of life.

6. A study on the role played by co-curricular actives in creating environmental awareness and attitudinal changes.

7. A study on the role played by mass media in educating masses about environmental issues/problems.

8. A study on the environment and a sense of commitment and responsibility to take proactive action.

9. A study on the role of the individual, community and national agencies in resolving environmental problems.

10. A comparative study of sub areas of environmental education both formal and non-formal.

11. A study on qualitative improvement in the environment by assuming leadership role in the society.

12. A study on identifying oneself with an attitude to personally contributing towards environmental improvement.

13. A study on the customs and traditions related to local community conservation practices and accept indigenous eco-friendly methods.

14. A study on the develop skills to undertake and participate in investigative on various environmental issues.

15. A study on the motivation and participation in social and community activities in dealing with environmental problems.

5.6 CONCLUSION

In conclusion environmental education, positive attitude towards environment and environmental awareness among the students of higher education in the state of Nagaland is very important. The World Environment Day was established by the United Nations General Assembly in 1972 on the day that United Nations Conference on Human Environment began. The first World Environment Day was celebrated in 1973. Since then it is hosted every year by different counties with different themes. World Environment Day falls in spring in the North Hemisphere and fall in the South Hemisphere and mid-summer in the Tropical Regions. Nagaland is vulnerable to climate change. A climate change scenario accentuated by our dwindling forest area, there will be gradual shifting of plant species to higher altitude and in due course of time some plants species will disappear. There is scarcity of water in different part of the state especially during the winter season. People set fire to forest and destroys the pristine forest of the state. This is happening in many part of the state of Nagaland.

CHAPTER - VI
SUMMARY AND CONCLUSION

6.1 INTRODUCTION

6.1.1 BACKGROUND OF NAGALAND

Nagaland is the 16th state of the Indian Union. It is the third smallest state of India and is located in the north eastern-region of the country. Known for its beautiful green mountains, it is a store house of rich flora and fauna. Nagaland was officially inaugurated by the then President of India, Dr. Radhakrishnan as the 16th state of India on the 1st of December, 1963 with P.Shilu as the first Chief Minister.

6.1.2 GEOGRAPHICAL LOCATION AND PEOPLE HABITATS

Nagaland is located in the extreme northeastern region of India with Kohima as its capital. The State is bounded by Assam in the west, Myanmar in the East, by Arunachal Pradesh in the North and Manipur in the South. It runs more or less parallel to the hilly ranges. Nagaland is a beautiful state, which lies between $25^0.6^0$ North and $27^0.4^0$ North, $93^0.20^0$ East and $95^0.15^0$ East. It has a total geographical area of 16, 5279 square kilometer. The land is lush with luxuriant forests, rolling mountains, enchanting valleys and swift flowing streams and rivers. The altitude varies from 200 meters in plains to 3,840 meters in the hills.

Nagaland is home to seventeen major tribes and sub-tribes. The major tribes are Ao, Angami, Chang, Chakhesang, Konyak, Kuki, Kachari, Khiemungam, Lotha, Phom, Pochury, Rengma, Rongmei, Sangtam, Sumi, Yimchunger and Zeliang. Each tribe is distinct from the others in terms of custom, tradition, language and costumes.

6.1.3 POPULATION AND LITERACY

The population of Nagaland state according to the 2001 census is 19,18,636 and 2011 census is 19,80,602. The male population is 10,25,707 and female is 9,54,895. For the first time in the history of census in Nagaland a negative growth rate minus 0.47%of population

has been recorded in March 2011. Literacy rate as per 2001 census is 57.11% and in 2011 census, the literacy rate of Nagaland is 80.11%.

6.1.4 HISTORY OF FORMAL EDUCATION IN NAGALAND

The Naga inhabited area came under the colonial rule of the British Empire. Thus with the coming of the British rule, the Nagas were introduced to a formal system of school education. School Education to the Nagas was spearheaded by the Christian Missionaries. Rev. E.W. Clark was one of the first missionary who established a school in the Ao inhabited area of Nagaland in 1872. The second place was established in Kohima, initiated by Rev.Dr.D.C.King. He was the first American Missionary to arrive in Kohima in 1878. Thus, by 1880's the British established many schools in Naga Hills. It enabled the Nagas to read the Bible and sing gospel hymns. Along with the introduction of a new religion, the missionaries introduced secular education allowing the Nagas to read, write and solve arithmetic problems.

With the increase in literacy percentage, the students in Primary Schools have been increasing rapidly along with a growth in the number of schools. Many institutes for higher education have also been established. Literacy rate in Nagaland according to 2011 census is 80.11% which is a giant leap as compared to the 1991 (61.65%) and 2001 census (67.11) .Nagaland University is a Central University established by an Act of Parliament No. 35 of 1989 for Higher Education in the state. The university became functional on the 6th of September, 1994.

6.1.5 COLLECTIVE ANALYSIS ENVIRONMENTAL ATTITUDE IN NAGALAND

An attitude is an expression of favor or disfavor toward a person, place, thing, or event (the attitude object). Most contemporary perspectives on attitudes also permit that people can also be conflicted or ambivalent toward an object by simultaneously holding both positive and negative attitudes toward the same object. This has led to some discussions of whether individual can hold multiple attitudes toward the same object. One of the underlying assumptions about the link between attitudes and behavior is that of consistency.

Attitudes are related to self-image and social acceptance (i.e. attitude functions).In order to preserve a positive self-image, people's responses may be affected by social desirability. They may not well tell about their true attitudes, but answer in a way that they feel socially acceptable.

6.1.6 COLLECTIVE ANALYSIS OF ENVIRONMENTAL EDUCATION AND AWARENESS IN NAGALAND

Awareness is the ability to perceive, to feel, or to be conscious of events, objects, thoughts, emotions, or sensory patterns. In this level of consciousness, sense data can be confirmed by an observer without necessarily implying understanding. More broadly, it is the state or quality of being aware of something. The 'Environmental Education Awareness' is enhancing the understanding of people at all levels about the relationship between human beings and the environment and to develop capabilities/skills to improve and protect the environment. To promote environmental awareness among all sections of the society and to mobilize people's participation for preservation and conservation of environment should be a primary concern.

The issue of environmental education has been a major cause of concern. Several national and international seminars, conferences and workshops have stressed the need of environmental education. The objective of such education is that individuals and social groups should become aware, acquire knowledge, and develop attitudes, skills and abilities to address real-life environmental problems. Integrated inter-disciplinary and holistic education is to be provided to all sections of the population. It would first of all require a new approach to education itself—which cuts across different subjects in schools and universities.

6.1.7 GOVERNMENT INITIATIVES IN ORGANIZING ENVIRONMENTAL AWARENESS IN COLLEGE

a. Orientation Programmes for Eco- Club Schools in Dimapur

A total of 84 schools attended an orientation program organised for Eco-Club Schools under Dimapur Forest Division at Forest Office Complex, Dimapur. According to a press note, during the programme, the teachers representative of Eco-Clubs school were sensitised on the various environmental and ecological topics by the officers of the division. The orientation Program was followed by sanctioning of token seed money of Rs.2500/- to each eco-club school provided by the Ministry of Environment & Forests. All the registered eco-club schools were requested to collect the token seed money within the month.

b. National Green Corps (NGC)

National Green Corps is a major initiative of MOEFCC for creating environmental awareness launched in 2001-02 which aims at building cadres of young children working towards environmental conservation and sustainable development . The phenomenal response that NGC has received and has made the network more than 1,00,000 Eco clubs across the country in 14 years, making it one of the largest conservation networks indicates its importance at grass root level in taking the environment awareness to the mass. During the financial year 2014-15, 92310 Eco-clubs were supported by the Ministry across the country. A suggestive list of activities has been communicated to State Nodal Agencies. Out of these some activities have been identified for implementation by Eco - clubs.

c. **Northeast NSS Youth Festival at Kohima**

The inaugural program of the North East NSS (National Service Scheme) Youth Festival 2016 was held at Indira Gandhi Stadium, Kohima. Chief Secretary, Nagaland, Shri. Pankaj Kumar, IAS graced the inaugural program as the Chief Guest. Organized by the National Service Scheme (NSS) under the Department of Youth Resources & Sports, Nagaland in collaboration with the Ministry of Youth Affairs and Sports, Government of India, the festival was scheduled from March 1 to 5. 2016. The program was chaired by Sungjemmongla Jamir while Pete Z. Krose, Vice Principal, Kohima Bible College, Kohima invoked God's blessing at the service. The welcome address was given by C.Theyo, State NSS Officer while Don Bosco

College, Kohima presented the NSS theme song. It included a special number by Khrüküdülü Swüro and a special appearance was made by Christina Lalruatpuii.

6.1.8 PUBLIC ENVIRONMENTAL AWARENESS IN NAGALAND

Public Environmental Awareness and Education Action can be taken in a variety of areas to increase environmental awareness and education. Some of these categories are: environmental legal rights and responsibilities and associated consequences, use of the media, awareness raising campaigns, incorporation of environmental issues in mainstream education, increasing awareness and education in target groups and encouragement of public participation in environmental matters. As the following case studies illustrate, many sectors of society are involved in developing and delivering educational courses and public awareness campaigns. These include Government institutions at the national, regional, and local levels; domestic and international NGOs; primary, secondary, and post-secondary schools; journalists and the media; celebrities; and other individuals and institutions. Moreover, educational and awareness efforts can target practically any sector of society. They can seek to raise public awareness broadly on environmental issues (e.g., through the media) or they may be a targeted campaign or educational effort focused on a specific sector (or target audience) on a specific issue. Funding for awareness and education initiatives may come from a variety of sources. Often, it comes from the budget of specific agencies or Ministries; it is uncommon for such initiatives to receive funding directly from the central budget. Some States have accessed their national Environment Funds to provide partial funding for environmental awareness and education.

6.1.9 ENVIRONMENTAL PROBLEMS IN NAGALAND

Global warming has become an undisputed fact about our current livelihood. Our planet is warming up and it is definitely part of the problem. Our world is poised at the brink of a severe environmental crisis. Environmental problems make it vulnerable to disasters and tragedies in the present times and in the future as well. Environmental problems are piling up around us. Unless the various issues are addressed prudently and seriously, it will lead to disaster. Environmental problems require urgent attention.

6.1.10 NEED AND IMPORTANCE

We need to raise good stewards of the environment to care for issues like resource depletion, environmental pollution, land degradation, and accelerating species extinctions. Conservation efforts will accelerate if we can better educate the children about their connection to the nature and their dependency on it. The spiritual connection to the Earth will teach children that they are a part of nature and must take care of both their surroundings and other people. Environmental education increases public awareness and knowledge about environmental issues or problems. In doing so, it provides the public with the necessary skills to make informed decisions and take responsible action.

Despite the deteriorating status of the environment, it has so far not yet received adequate attention in our academic domain. Recognizing this need, the Supreme Court of India has directed the University Grant Commission (UGC) to introduce a basic course on environment for every student. Accordingly, the matter was considered by the UGC and it was decided that a six month compulsory care module course on environmental education would be prepared and compulsorily implemented in all the universities/colleges in India. The educational approach developed in building a sustainable future should therefore entail more than developing personal attributes to deal with immediate environmental challenges. It should also seek to arm individuals and communities with the means to critically examine and influence the social structures that fundamentally affect their lives.

6.1.11 **STATEMENT OF THE PROBLEM**

Statement of the problem is stated as**, A Study of Environmental Education, Attitude And Awareness Among The Students In Higher Education In Nagaland.**

6.1.11.1 DEFINITION OF THE TERMS USED

The operational definitions of the terms use are as follows:

h. **Environment:** The natural world, the surrounding or conditions in which a person, animal, or plant lives and operates.

i. **Education:** The process of teaching and learning, the theory and practice of teaching or training in a particular subject.

j. **Attitude:** A way of thinking as feeling about someone or something self – confident or hostile behavior.

k. **Awareness**: Having knowledge of a situation or fact.

l. **Student:** A person studying at a school or college, a person who takes a particular interest in a subject.

m. **Program:** A planned series of events , a set of related measures or activities with a long term aim.

n. **Policy:** A course of action adopted or proposed by an organization or a person.

6.1.12 HYPOTHESIS OF THE PRESENT STUDY

In the present study data were collected using interview schedules, questionnaires, attitude scale and awareness scale. The data were analyzed using descriptive and inferential statistics. The findings have been employed by the researcher to examine the present research hypothesis.

1. Awareness of the students of the need to conserve bio-diversity and develop a more sustainable life style in using resources more equitably.

   i). For the present study, 25 head of the institutions and 30 teachers of higher education; 735 teachers from all the 11 districts of Nagaland were subjected with questionnaires and interview schedules. It provided the following evidences that supported the hypothesis:

   a. The study showed that all the colleges in the Study have environmental awareness as a compulsory and elective subject.

b. The colleges are working towards creating environmental awareness and its conservation amongst the students. 60% of the colleges in the study conduct programs on environmental guidance and counseling for the students. However only 30% of the teachers participated in protection and preservation of forest and wild life.

c. According to study, 90% of the teachers encouraged the students to participate in various environmental activities like, cleanliness drive, mass social works, tree plantations, use re-usable materials, and buy eco-friendly products

f. The study also revealed that 95% of the students observe World Environmental Day, 28% Cleanliness drives, 91% Mass social works, 41% Tree plantations, 77% Proper waste disposal, 93% Field study, and 65% attend environmental seminar and workshop.

g. The study also revealed that 92% of the students were aware of the importance of environmental education while 8% still needed to know the importance of environmental education. Developing positive attitude towards environmental awareness and preservation was found to be the most common reason for the development of such awareness.

iv) An environment awareness scale was developed for the purpose of the study. The scale was aimed at assessing the environmental awareness and knowledge about a more sustainable lifestyle among students.330 students from the population sample of the study participated. On a scale of 0 to 20, a mean average of 16.5 was calculated. It indicates an above average awareness amongst the students on environmental issues and its preservation.

One –way Anova was administered for inferential statistics to determine if there were any significant statistical differences amongst the students of the different districts in environmental awareness. The calculated F- ratio was 1.51 and at a significance level of 0.05, it was found that there were no significant differences

(p=0.134) among the students from different districts in environmental awareness.

2.Students' attitude towards environment by relating with practical approach based on observation and self-learning in environmental activities like cleanliness drive, mass social work.

i. Interviews and questionnaires to 735 students from 20 colleges in 11 districts of Nagaland provided the following evidences that supported the hypothesis:

a. According to the study, the teachers responded that 80% of the students in the study show a positive attitude towards the subject of environmental education.
b. 95% of the students in the study was found to observe the World Environmental Day.
c. 28% of the students in the study took part in cleanliness drives.
d. 91% of the students in the study were involved in mass social works.
e. 41% of the students took part in tree plantations.
f. 77% of the students in the study practiced proper waste disposal,
g. 93% of the students participated in field study .
h. 65% of the students took part in environmental seminars and workshops.
i. 52% of the students in the study took part in environmental conservation.
j. 48% of the students bought environmentally friendly products.

ii. The administration of an environmental attitude scale to 330 students of the study population provided a mean score of 90.5 out of a total possible score of 110 and an average score of 55. The mean score of the study sample is indicative of a high attitude towards environmental issues and its conservation. One –way Anova was administered for inferential statistics to determine if there were any significant statistical differences amongst the students of the different districts in environmental attitude. The calculated F- ratio was 1.12 and at a significance level of 0.05 , it was found that there were no significant differences (p=0.346) among the students from different districts in environmental attitude.

3.To create an understanding the needs and importance of environment and eco-system which bring changes to every living organism.

i).For the present study, 25 head of the institutions and 30 teachers of higher education; 735 teachers and 200 local community members from all the 11 districts of Nagaland were subjected with questionnaires and interview schedules. It provided the following evidences that supported the evidences:

a. The study showed that 84% of the students felt environmental education created awareness.
b. 84% of the students environmental education inculcated positive attitude towards environment,
c. 80% of the students reported to have developed a civic sense and responsibility towards the environment.
d. 96% of the students felt that protection and preservation of forest and wild life were needed to have a balanced ecology.
e. The study showed the percentages of teachers who suggested the different ways and means in solving environmental issue and problems: Saving water- 87%, Saving paper - 50%, Stop cutting tree - 87%, Proper disposal of dustbins - 94%, Stop burning forest -74%, and Reducing use of plastic- 94% .
f. The study showed the following steps that the local communities have taken up to protect forest and wild life in local areas : 71% putting up environmental sign board, 87% imposing fine to the environmental defaulter, 83% Rules and regulations were made on forest and wild life protection, 86% Prohibition of hunting, 90% Prohibition of burning forest, 81% Planting sapling once the tree is cut down for firewood.
g. Percentage of college authorities that allowed students to participate in the following environmental activities according to the study are as follows; Mass social work - 100%, Mass cleanliness drive -96%, and Mass tree plantation - 80%.

ii). The administration of an environmental attitude scale to 330 students of the study population provided a mean score of 90.5 out of a total possible score of 110 and an

average score of 55. The mean score of the study sample is indicative of a high attitude towards environmental issues and its conservation. One –way Anova was administered for inferential statistics to determine if there were any significant statistical differences amongst the students of the different districts in environmental attitude. The calculated F- ratio was 1.12 and at a significance level of 0.05 , it was found that there were no significant differences (p=0.346) among the students from different districts in environmental attitude.

h. An environment awareness scale was developed for the purpose of the study. The scale was aimed at assessing the environmental awareness and knowledge about a more sustainable lifestyle among students.330 students from the population sample of the study participated. On a scale of 0 to 20, a mean average of 16.5 was calculated. It indicates an above average awareness amongst the students on environmental issues and its preservation.

One –way Anova was administered for inferential statistics to determine if there were any significant statistical differences amongst the students of the different districts in environmental awareness. The calculated F- ratio was 1.51 and at a significance level of 0.05, it was found that there were no significant differences (p=0.134) among the students from different districts in environmental awareness.

6.1.13 OBJECTIVES OF THE PRESENT STUDY

The objectives of the study were as follows;

i. To study the programs in Nagaland about environmental education.

ii. To study the effort of local community with regard to environmental education.

iii. To study the programs of environmental education offered by colleges.

Iv. To study and compare the attitude of higher education students in Nagaland towards environment.

v. To assess and compare the awareness of the college students in Nagaland towards environment.

vii. To bring out suggestions for creating positive environmental attitude and awareness.

6.1.14 DELIMITATIONS OF THE PRESENT STUDY

The delimitation of the studies were as follows;

4 Environmental Education programs organized by various colleges in Nagaland.

5 Students attitude and awareness towards environmental activities in colleges.

6 Studies confined to Higher Education; Head of the Institutions, Teachers, Students, and Local Communities in Nagaland.

7 The study was conducted at 19 colleges out of which7 was Private Colleges and 12 were Governmental Colleges and various Local communities from 11 Districts in Nagaland.

6.2 REVIEW OF RELATED LITERATURE

6.2.1 STUDIES CONDUCTED IN INDIA

The following were the studies conducted in India;

Indera P. Singh and Tiwari, S.C., 1980. *Man and his Environment*. The Man and environment relationship makes a fascinating area of study.

Ganguli, D., Vashishtha, U.C.V., 1980. *A Trend Report Environmental Educational Research in Science Education.*

Das, B.C., 1980. *Population, Food, Energy, Environment, Science and Technology. A hopeful strategy for reduction of poverty*.

Ghose, GauriRani, 1988.*Know the plants around you. Independent study*.

Khattar, N., 1988. *Systematic studies of fauna in and around Bhubaneswar for development of a museum*.

Sharma, Munishwar kumar, 1990. A *study of scientific literacy, attitudes towards science and personality traits of students and teachers.*

Shahmawaj, 1990.*Environmental awareness and environmental attitude of secondary and higher secondary school teachers and students towards the environment.*

Kidwari, Zeenat, 1991. *Development of an environmentally – oriented curriculum in Geography at secondary Stage*.

Phaharaj, B., 1991. *Environmental knowledge, environmental attitude and protection regarding environmental education among pre-service and in-service secondary school teachers.*

Gopal Khrishnan, Sarojini, 1992.*Impact of Environmental Education on Primary School Children.*

Sahoo, K.C., 1992.*A critical study of the conception and perception of environment education.*

Agrawal, S.P., Agrawal, J.C., Prithvish Nag, 1996. *Environment Protection and Policies in India*.

Aggrawal, S.P., Aggrawal, J.C., 1996,*Climate Change and Environmental Issues*.

Agrawal, S.P., Aggrawal, J.C., 1996, Indian Institutional base for environmental education, (selected profiles), Centre for environment education, Ahmedabad, 380054, India.

Agrawal, S.P., Aggrawal, J.C., 1996, *Environmental Awareness and Status*.

Agrawal, S.P., Aggarwal, J.C., 1996. *Environment and Forests in India*. information; international co-operation and creation of environmental awareness at national level.

Agwarwal, S.P., Aggawal, J.C., 1996. *Consumption Patterns, Environment and Sustainable Development.*

6.2.2 STUDIES CONDUCTED IN ABROAD

The following are the studies conducted in abroad;

Kelly, Christine, M., 1996. *Understanding our sensitivity to the natural environment*. *An initial theory of the nature of environmental responsiveness*.

Kebey, Jason, 1996. *Effect of residence time and environmental properties on the bio-availability and extractability of organic compounds in soil*.

Berkely, 1996. *Achieving Public Health goals at hazardous waste sites: uses and limitation of risk assessment in a community context, Kyle, Amy, Dale*.

Ahn, Hyung-ki, 1996. *Technological risk and the citizens movement towards environmental protection*.

James, E., 1996. An *assessment of attitudes, knowledge and beliefs of global warming. A comparison between twelfth grade students in Lansing, Michigan and Valdosta, Georgia, Fason*.

Agrawal, S.P., Aggarawal, J.C., 1996. *United Nations Environment Program*.

Agarwal, S.P., Aggrawal, J.C., 1996. *International concern for Environment*.

David, Micheal Dean, 1997. *Industrial Organophosphates: Soil extraction accelerated hydrolysis and environmental presence.*

Kearney, Anne Regina, 1997. *Some Implication of cognitive maps theory for Environmental Problem Solving and Decision making*.

Franklin Edward Albert, 2000.*An evaluation of the California Forestry Institute for Teacher*.

Sikinyi, 2003. *The role of the bio sciences and biotechnology in agricultural education in the secondary school agriculture curriculum as perceived by agriculture educators*.

6.3 METHODOLOGY

6.3.1 POPULATION

The population of the present study comprised of Higher Education/Colleges of both private and government of eleven districts of Nagaland. The present study comprised of 25 Head of the Institutions of which 21 were male and 4 were female, 30 Teachers of which 18 were male and 12 were female, 735 Students of which 380 were male and 335 were female, 200 Local community of which 100 were male and 100 were female. The study was conducted in Higher Education / Colleges of Nagaland including 330 students used in the present study of environmental attitude scale and environmental awareness scale.

6.3.2 SAMPLE

The purposive samples were used for questionnaires and interview schedules of the present study. Altogether 20 colleges were selected from eleven districts of Nagaland. The sample of the present study comprised of 25 Head of the Institutions of which 21 were male and 4 were female, 30 Teachers of which 18were male and 12 were female, 735 Students of which 380 were male and 335 were female, 200 Local community of which 100 were male and 100 were female. The study was conducted in Higher Education / Colleges of Nagaland

including 330 students used in the present study of environmental attitude scale and environmental awareness scale.

6.3.3 DATAS COLLECTION

Relevant data were collected both in primary data and secondary data in the present study. They are as follows: a) Primary data collection: Data collected from primary sources by administering questionnaire, interview, area study, and observation, and b) Secondary data collection: Data collected from secondary sources like documentary, record sources, journals and text books.

6.3.4 TOOLS USED

a. Questionnaires- In order to collect the required data and elicit opinions and views of the respondents, the investigator device a questionnaire. These questions were formulated by the investigator and analysed after consultation with expert educationists. Various literature, journals, dictionaries, research report etc were studied and consulted.

b. **Interview -** An interview schedule was developed to interview the respondents through personal observation and interview.

c. Linkert Scale Environmental Attitude Scale- It is a five point Likert Scale type with 22 items which assesses the environmental attitude of the college students. It has five response options (strongly agree, agree, undecided, disagree, strongly disagree) allowing the students to indicate their level of agreement or disagreement to a given statement. It was divided into two sections. The first section required the subjects to fill in their personal information and the second section contained 22 items.

d. Development of the test- before formulating the test items, questions regarding the condition of the environment and its conservations were

asked to college students and their responses were recorded. Using these responses and related literature (Leeming et al. 1997; Sama 2003; Uzun and Saglam 2006; Gokce et al. 2007; Aslan et al. 2008), the test items were formulated. The initial test items were 85 in total. Each item was placed into a matrix and then asked to be evaluated in terms of four areas: content validity, clarity and understandability, accuracy and distracters. The items were sent to experts in the field to determine the relevance, coverage, comprehension and consistency of the test. The items were pilot tested to 250 college students. According to their responses, irrelevant items were removed resulting in 22 items.

e. **Reliability and validity-** validity is concerned with whether the items are measuring what the test intents to measure. Reliability is about the consistency of the scores. For validity, the expert opinions provided data about content and face validity, and students' evaluation provided data about construct validity. Cronbach alpha internal consistency coefficient was calculated to test reliability. Thevalue of Cronbach alpha can range from 1 to 0. A basic research it should be atleast 0.8 (Lui, 2003). The Cronbach alpha for the present scale was found to be 0.84, which can be considered a reliable and valid test.

f. **Scoring** – each item was given a maximum score of 5 (strongly agree=5, agree=4, undecided=3, disagree-2, strongly disagree= 1). Out of the 22 items, four items were negatively worded and hence the scores on these four items were reversed. The total possible score of the test is 110. A score of 0-36 is low, 37-73 is medium and 74 to 110 are high.

g. Environmental Awareness Scale- The scale was developed to study and compare the general awareness regarding the environment amongst the college students in Nagaland from the different districts present in the study. The term 'Environmental Awareness' not only implies knowledge about environment but also attitude, values and

necessary skills to solve environment related problems. Moreover, environmental awareness is the initial step ultimately leading to the ability to carry on responsible citizenship behavior (Sengupta, Das Maji, 2010). The Environmental Attitude Scale consists of 20 items which will measure the actual knowledge of the college students in the study regarding the environment. It is divided into two sections. The first section requires the subjects to fill in their personal information and the second section contains 20 items.

h. **Development of the test**- before formulating the test items, questions regarding the condition of the environment and its conservations were asked to college students and their responses were recorded. Using these responses and related literature (Azizi et al, 2009, Sengupta, Das Maji, 2010, Ibrahim et al, 2010),the test items were formulated. The initial test items were 80 in total. Each item was placed into a matrix and then asked to be evaluated in terms of four areas: content validity, clarity and understandability, accuracy and distracters. The items were sent to experts in the field to determine the relevance, coverage, comprehension and consistency of the test. The items were pilot tested to 250 college students. According to their responses, irrelevant items were removed resulting in 20 items.

1. **Reliability and validity-** validity is concerned with whether the items are measuring what the test intents to measure. Reliability is about the consistency of the scores. For validity, the expert opinions provided data about content and face validity, and students' evaluations provided data about construct validity. Cronbach alpha internal consistency coefficient was calculated to test reliability. Thevalue of Cronbach alpha can range from 1 to 0. A basic research it should be atleast 0.8 (Lui, 2003). The Cronbach alpha for the present scale was found to be 0.82, which can be considered a reliable and valid test.

2. **Scoring** – each item was scored 1 for a correct answer and 0 for a wrong answer. The total possible score of the test is 20 and a minimum of 0 scores. A score of 0-6 is low, 7-13 is medium and 14-20 is high.

6.3.5 STATISTICAL TECHNIQUE USED

Statistical technique is used to analyze the data in the present study. Responses from Head of the Institution, Teachers, Students, and Local Communities were tabulated and counted from the various items of the questionnaire and interview schedules made personally. The data's from each item of each sub section of the questionnaire were calculated in terms of percentage and each table were given with a specific title. For the environmental awareness and attitude scales descriptive and inferential statistics were used. For the present study mean, median, mode and standard deviation were used and for inferential selection by the investigator used one-way Anova.

a. **Formula of Mean**

The mean has been taken as the sum of all the scores in the distribution divided by the total number of scores

Mean= $\sum X/n$

2. $\sum X$= sum of scores
2. N= number of scores

b. Formula of Median

The median has been taken as the point along the scale of scores below which 50% of the scores fall.

$Mdn = LL + (i)\ [.5n - \text{cum } f \text{ below}/ f]$

Where,

6. *LL*= Lower real limit of class interval containing P_{50}

7. i= width of the class interval
8. .5n= number of scores lying below the median
9. cum *f* below= number of scores lying below *LL*
10. *f*= frequency of the scores containing the median

c.Formula of Mode

Mode is the value which occurs most frequently in a set of observations and around which the other items of the set cluster densely. The mode of a frequency distribution is that value of the variable which has maximum frequency. Mode formula below:

$$\text{Mode} = L + \frac{f_m - f_{m-1}}{(f_m - f_{m-1}) + (f_m - f_{m+1})} \times w$$

where:

3. L is the lower class boundary of the modal group
4. f_{m-1} is the frequency of the group before the modal group
5. f_m is the frequency of the modal group
6. f_{m+1} is the frequency of the group after the modal group
7. w is the group width

d. Formula of Standard Deviation

a.Standard Deviation

$$S_{X=} \sqrt{SS_{x/}n}$$

Where,

4. $S_{X=}$ Standard Deviation
5. $SS_{X=}$ Sum of squared deviations from the mean
6. N= number of scores

b. Sum of squares was calculated using the formula

$$SS_{X=}\sum x^2 - (\sum X)^2/N$$

Where,

3. X^2 = square of the total sum of scores
4. $\sum X^2$ = total sum of the squares of scores

e. One Way Anova

$$F= S^2_{bet}/S^2_w$$

Where,

4. F= Fisher ratio
5. S^2_{bet}= between group variance
6. S^2_w= within group variance

f. **Cronbach Alpha correlation coefficient**.

$$\alpha = \{[N/N-1] \times \text{total variance-sum of variance of each item}\} \times \text{total variance}$$

6.4 ANALYSIS AND INTERPRETATION OF DATA

Analysis and interpretation of data collected through administering of questionnaire, interview schedules, attitude and environmental awareness scales were analyzed and interpreted employing appropriate statistical techniques. Responses to the questionnaires and interviews, altogether 20 colleges were selected from eleven districts of Nagaland. The present study comprised of 25 Head of the Institutions of which 21were male and 4 were female, 30 Teachers of which 18were male and 12 were female, 735 Students of which 380 were male and 335 were female, 200 Local community of which 100 were male and 100 were female. The study was conducted in Higher Education / Colleges of Nagaland including 330 students used in the present study of environmental attitude scale and environmental awareness scale were classified, tabulated and counted into percentage. For the Awareness Scale, there were 20 questions and each question carried 1 mark for correct

answer and wrong answer carried 0. So, the total score is 20 marks out of 20 questions. Respondent's awareness on environmental knowledge was categorized according to the composite score of responses of twenty questions. Respondents who scored 0 to 6 have a low awareness, 7 to 13 have an average awareness, and 14 to 20 have a high awareness on environmental knowledge.

6.5 MAJOR FINDINGS AND SUGGESTIONS

6.5.1 MAJOR FINDINGS OF THE STUDY

OBJECTIVE: 1

To study the programmes in Nagaland about Environmental Education

1. The study revealed that Environmental Education included in the curriculum of Higher Education; Environmental education is 100%, As elective subject responded is 100%, and as compulsory subject is 100% .

2. It was found that 37% had Environmental Education subject teacher and 64% still needed subject teacher.

3. It was observed that programme/areas college authority organized on environmental activities are as follows: 80% regular classroom teaching, 92% field study, 60% personal hygiene, 72% Cleanliness, 84% Mass social works, 80% Tree plantations, and 84% seminar and workshops.

4. The study saw that 60% conduct programme on environmental guidance and counseling in colleges, 40% were still yet to implement, 50% National Service Scheme (NSS), 33%classroom discussion, 23% seminar and workshop.

5. Study reveals that the teachers contribution in controlling and checking of environmental pollution and preservation are as follows; 67% Teacher as role model environmentalists, 60% responded as Skill training, 67% responded as

Organizing awareness programme, 77% Participate in cleanliness drives, 77% in Mass social work, 60% Tree plantation, 67% Proper waste disposal, 80% Buy eco-friendly products , and 70% Conducted seminar and workshop.

6. Accordingly the study saw different types of environmental guidance and counseling provided by teacher to students as follows; 83% Educating students about the issues and problems of social, economic, political and health, as environment play its role for better performances. 90% Students are encouraged to participate in various environmental activities like, cleanliness drive, mass social works, tree plantations, use re-usable materials, and buy eco-friendly products, 87% Encouraged students to initiate and participate in protection and preservation of forest, wildlife and endangered species in their local areas.

7. The study revealed that 92% had Knowledge on importance of environmental education in students and 8% still needed to know the importance of environmental education. Reason on importance of environmental education; 75% Developing positive attitude, 64% Create environmental awareness, 89% Sustainable method of using natural resources, 81% Provide knowledge of ecological balance.

OBJECTIVE: 2

To study the effort of local community with regard to environmental Education

8. It was observed that 30% of the local community have mass environmental awareness programme, 30% were still unaware of environmental importance, and 40% some times, 48% saw environmental awareness created by NGO's/ Government Organization and 52% were still needed.

9. The study found that college authority participated in creating environmental awareness for local community as follows; 32% used of Environmental post-card, 40% used Environmental bill board, and 28% used staged Dramas on environmental problems.

10. The study show 68% of local communities had the knowledge about environmental importance and 33% were still in need of Environmental education.

11. The study revealed that local communities participated in environmental activities as follows; 50% Saving trees, 75% Tree plantation, 17% Recycle waste production, 43% Conservation of forest area, 13% Buy eco-friendly products.

12. The study found that 68% practiced jhum cultivation and 33% did not.

13. The study shows that the environmental protection and conservation is necessary for human being as follows; 90% to have a healthy life, free from various diseases, 83% to have free from air, water, and food pollution, and 76% to keep alive the beauty of natural flora and fauna.

14. It was observed that effects of climate change in the locality are as follows; 91% Scarcity of water, 89% Rise in temperature, 50% Drought, 88% Scarcity of rainfall, and 50% Health hazard.

OBJECTIVE: 3

To study the programme of environmental education offered by colleges

15. The study found that college authorities allowed Student to participate in environmental activities as follows; Mass social work is 100%, Mass cleanliness drive is 96%, and Mass tree plantation is 80%.

16. It was observed that Minor research studies conducted by teachers as follows; 10% Yes, and 90% No. Reason for not conducting minor research studies by teachers; 67% Lack of time, 50% Lack of Knowledge, and 50% Lack of financial resources.

17. The study revealed the teachers view about environmental education as subject at higher learning as follows; 50% As compulsory subject, and 50% that Skills training for students to protect and preserve environment from destruction and pollution.

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18. The study showed the purpose of environmental education as follows; 67% as compulsory subject, 73% to create awareness in students, 67% to develop positive attitude in students , and 70% to understand the bio-diversity and have a balanced eco-system.

19. The study showed that students participated in environmental activities as follows; 94% Mass cleanliness drives, 78% Mass social works, 58% Tree plantations, 48% Buy eco-friendly products, 55% Proper waste disposal, 44% Participating in environmental seminar and workshop, and 71% Field Study.

OBJECTIVE: 4

To study and compare the attitude of higher education students in Nagaland towards Environment.

20. Scale was developed and administered to study and compare the environmental attitude of the college students in the study. The scores of the students from the 11 districts were calculated and performance of the students from the different districts were compared. For the analysis of the Environmental Attitude Scale, descriptive and inferential statistics were used. For the former, mean, mode, median and standard deviation were calculated from the obtained data. They were all calculated for all the eleven districts as shown in the table Since the maximum score possible in the scale administered is 110, a mean score will have a value of 55. The average mean of the total score was found to be 90.5. a score that is less or equal to 36 is considered low, 37- 73 is medium and 74-110 is high.

    a. A mean average score of 90.5 is indicative that score of the students; attitude towards environment is high. There are some differences in the mean of students from the different districts with Kohima district having

the highest mean (92.5) and Mon having the lowest mean score(87.9). However their differences are not exceedingly large and the general score is quite high. The mode is the score that occurs with the highest frequencies.

b. The mode is highest for Dimapur district with 98.5 and Peren district has the lowest with 80.5. most of the scores in mode for the different districts lie between 90 to 94.

c. The median of a distribution is the point along a scale of possible scores below which 50% of the score falls. It is less sensitive than mean to the presence of extreme scores. The scores of students from Kohima district had the highest median of 93.2 and Mon district with the lowest with a median of 85.5. it means that for Kohima district, 93.2 is the point below which 50% of the scores lie, while for Mon district, 85.5 is the point below which 50% of the scores lie.

d. The standard deviation is a measure of variance and it is responsive to the exact position of every score in the distribution. The standard deviation ids highest for Zunheboto district with 9.8 and lowest for Wokha district with 5.2. Most of the standard deviation scores amongst the district lie between 6 and 7. There are little variations in the standard deviations as well amongst the districts.

21. One –way Anova was administered for inferential statistics to determine if there were any significant statistical differences amongst the students of the different districts in environmental attitude. The calculated F- ratio was 1.12 and at a significance level of 0.05 , it was found that there were no significant differences (p=0.346) among the students from different districts in environmental attitude.

OBJECTIVE: 5

To assess and compare the awareness of college students towards Environmental Attitude and Awareness

22. The scale was developed and administered to study and compare the environmental knowledge or awareness of the college students in the study. The scores of the students from the 11 districts were calculated and performance of the students from the different districts were compared. For the analysis of the Environmental Awareness Scale, descriptive and inferential statistics were used. For the former, mean, mode, median and standard deviation were calculated from the obtained data. They were all calculated for all the eleven districts as shown in the table Since the maximum score possible in the scale administered is 20, a mean score will have a value of 10. The average mean of the total score was found to be 16.5. A score that is less or equal to 6 is considered low, 7- 13 is medium and 14-20 is high.
    a. A mean average score of 16.5 is indicative that score of the students; attitude towards environment is high. There are some differences in the mean of students from the different districts with Wokha district having the highest mean (18.8) and Peren having the lowest mean score(15.1). However their differences are not exceedingly large and the general score is quite high.
    b. The mode is the score that occurs with the highest frequencies. The mode is highest for Zunheboto district with 19 and Peren district has the lowest with a score of 13. Most of the scores in mode for the different districts lie between 16 and 18.
    c. The median of a distribution is the point along a scale of possible scores below which 50% of the score falls. It is less sensitive than mean to the presence of extreme scores. The scores of students from Wokha district had the highest median of 17.7 and Peren district with the lowest with a median score of 15. It means that for Wokha district, 17.7 is the point below which 50% of the scores lie, while for Peren district, 15 is the point below which 50% of the scores lie.

d. The standard deviation is a measure of variance and it is responsive to the exact position of every score in the distribution. The standard deviation ids highest for Peren district with 3.93 and lowest for Kiphere district with 2.10. There are little differences in the standard deviations as well amongst the districts.

23. One –way Anova was administered for inferential statistics to determine if there were any significant statistical differences amongst the students of the different districts in environmental awareness. The calculated F- ratio was 1.51 and at a significance level of 0.05, it was found that there were no significant differences (p=0.134) among the students from different districts in environmental attitude.

OBJECTIVE: 6

To provide suggestions for creating positive Environmental Attitude and Awareness

24. The study reveals the views and opinion of respondents that environmental education is important subject for higher learning as; 72% it created awareness among students in developing positive towards environment, 88% said it provide knowledge And wisdom in protecting and preserving healthy environment and 80% said it help students to understand the ill effect of environmental destruction and pollution.

25. The study shows view and opinion about the purpose of environmental education in college for students as; 84% creating awareness programme, 84% to inculcate positive attitude towards environment, 80% to develop civic sense of responsibilities, and 96% protection and preservation of forest and wild life to have a balanced ecology.

26. The study revealed that the need to improve environmental education in the state are as follows; 67% Trained teacher to be appointed for the subject, 77% Environmental education should be imparted at all stages of learning like primary, high school, higher secondary and university level. 93% Farming of curriculum at

all stages of learning should include environmental issues, problems, new challenges and need to protect and preserve from destruction and pollution. and 83% Proper fund allocation should be provided for mini-research project work by the central and state government.

27. The study showed students suggestion to improve students attitude towards environmental education as follows; 91% Qualified subject teacher be appointed, 88% Subject expert be invited in college environmental seminar and workshop, 79% College campus should be kept clean, green, and free from pollution, 91% Mass social works, 66% Tree plantations, 93% Availability of environmental text books, journals, magazine.

28. The study showed steps taken to protect forest and wild life in local areas as follows; 71% putting up environmental sign board, 87% imposing fine to the environmental defaulter, 83% Rules and regulations were made on forest and wild life protection, 86% Prohibition of hunting, 90% Prohibition of burning forest, 81% Planting tree once the tree is cut down for firewood.

29. The study found that developing awareness towards environmental protection as follows; 93% To create environmental awareness, 85% Inculcating civic sense of waste disposals, 92% Tree plantations, 87% Stop burning forest, 75% Encourage buying eco-friendly products, and 85% Conducting environmental seminar and workshop.

6.5.2 ANALYTICAL OVERVIEW AND JUSTIFICATION FOR THE PRESENT STUDY

Shahmawaj, 1990. Environmental awareness and environmental attitude of secondary and higher secondary school teachers and students towards the environment. It was found that 95 teachers and 945 students possessed positive environmental attitudes. The environmental trained teachers and trained teachers did not differ in their attitudes. Girls possessed significantly more awareness of environment than boys.

The study observed Teachers view about Student attitude towards environmental education as follows; Boys 15%, Girls 11%, and Both 74%.The study revealed College authority attitude towards forest and wildlife preservation and protection are 100% positive, The study showed student attitude with academic achievement towards environment. Very high is 0%, High is 30%, Average is 64%, and Below average is 6%.The study revealed level of students attitude with academic achievement towards environment; 50% Higher achiever, 50% Average achiever, and 0% Below achiever said by teachers. The study found Teachers views about Students interest towards environmental education subject are as follows; Yes 80%, No 10%, and Cannot say 10%.The study showed Students attitude towards environmental education as follows; 81% responded Positive, 5% responded Negative, and 15% responded Neutral.

Agrawal, S.P., Aggrawal, J.C., 1996, Environmental Awareness and Status**.** True education can play an important role in promoting higher values of life, but task does not seem to be an easy one when there is all round deterioration of moral standards. The need of the hour is that leaders and specially those who hold power should set good example.

The study revealed about creating awareness about healthy environment as follows; 93% Inculcating positive attitude in students, 90% Keeping the college surroundings clean and hygienic and free from pollution, 45% Student participation in environmental seminar and workshop, 32% Fund allocation for organizing environmental activities and programmes, 85% Teachers and students should be allowed to participate in mass social works, tree plantations, forest protections, waste management, recycle waste products, 80% A good library availability of environmental text books, journals, and magazine for students and teachers. The study showed creating environmental awareness to the mass local community as follows; 91% Proper waste disposal , 87% Proper waste disposal , 75% Mass tree plantation , 85% Proper drainages system, 66% Use audio visual environmental films in creating awareness, 72% responded Conduct seminars and workshops.

Kelly, Christine, M., 1996. Understanding our sensitivity to the natural environment. As the participant define their environmental beliefs and responses as pro-or-anti environmental areas superficial or satisfactory; their ability and effort to address environmental issues ; their perceive control over changing that which they contributed to the causes of environmental values are formulated to match their personal self-concepts.

The study shows teachers suggestions ways and means in solving environmental issue and problems as follows; Saving water is 87%, Saving paper is 50%, Stop cutting tree is 87%, Proper burning of dustbins is 94%, Stop burning forest is 74%, and Reducing use of plastic is 94% .

Berkely, 1996. Achieving Public Health goals at hazardous waste sites: uses and limitation of risk assessment in a community context, Kyle, Amy, Dale. Consideration of community health concerns did lead to identification of localized exposures that were significant in some communities consideration of health outcome data did not result in significant findings. Better co-ordination of site investigation of specialized exposures would improve the process.

The study observed that Awareness about the causes of various diseases due to environmental destruction and pollution. 100%, Yes, 0% No. Various Diseases;80% malaria,76% dengue fever, 92% bird flu, 84% Cholera, and 92% skin diseases. The study show that awareness about healthy environment in college campus as follows; No Smoking 91% Yes and 10% No, No Spitting on the Wall 92% Yes and 9% No, and No Tobacco Chewing92% Yes and 5% No.

James, E., 1996. An assessment of attitudes, knowledge and beliefs of global warming**.**The finding of the study have implications for environmental education, students, secondary school teachers, parents and decision makers.

It was observed that effects of climate change in the locality as follows; 91% Scarcity of water, 89% Rise in temperature, 50% Drought, 88% Scarcity of rainfall, and 50% Health hazard.The study reveal that 92% have Knowledge of important of environmental education in students and 8% still need to know the important of environmental education. Reason of important of environmental education; 75% Developing positive attitude, 64% Create environmental awareness, 89% Sustainable method of using natural resources, 81% Provide knowledge of ecological balanced.

Franklin Edward Albert, 2000. No significant differences were found in environmental attitudes between groups although females scored higher than males. No correlation was

found between knowledge and attitudes assessment scores. Forest Institute for Teacher (FIT) Participants integrates Environmental Education (EE) into curriculum for a number of reasons.

The study show steps taken to protect forest and wild life in local areas as follows; 71% putting up environmental sign board, 87% imposing fine to the environmental defaulter, 83% Rules and regulations were made on forest and wild life protection, 86% Prohibition of hunting, 90% Prohibition of burning forest, 81% Planting sapling once the tree is cut down for firewood.

Sikinyi, 2003. The role of the bio sciences and biotechnology in agricultural education in the secondary school agriculture curriculum as perceived by agriculture educators**.** Findings indicated that secondary school educators in the North Central Region of the United State were mainly middle age and predominantly male. The instructor believed that by integrating the sciences into curriculum they could prepare their students better for future employment opportunities in science and technology, which is as rapidly expanding industry.

The study revealed teachers views about environmental education as subject at higher learning are as follows; 50% As compulsory subject, and 50% that Skills training for students to protects and preserve environment from destruction and pollutions.

6.5.3 SUGGESTIONS AND EDUCATIONAL IMPLICATIONS OF THE PRESENT STUDY

The following were suggestions and educational implications of environmental education;

1.To be aware about the need to conserve bio-diversity, the need to lead a more Sustainable life style and the need to use resources more equitably.

2. Need to change our attitude towards our environment by using a practical approach based on observation and self-learning.

3. The need to create a concern for our environment that will trigger pro-environmental in our daily life to protect it.

3. Environmental problem and climate change has become increasingly a concerned for us. Unsustainable utilization can result from over use of resources, because many of us are using more resources than we really need.

4. To change the attitude not to smoke in public places. It is illegal and endangers not only ones own health but also that of others.

5. All good citizens must learn to act as a watch dogs to protect their own environment from the consequences of unsustainable projects around them. Well informed citizens not only have rights but also have a moral duty to perform in this regard.

6. Human societies will be seriously affected by extremes climate such as droughts and floods. To a large extent, public health depends on safe drinking water, sufficient food, secure shelter, and good social condition. These entire factors are affected by climate change.

7. The increasing demands of consumption on the finite resources of the planet, increasing level of environmental pollution, and the problems of waste disposal must be changed to a careful utilization of resources, recovery of used material by waste recycling.

8. Every community should organize extensive programs on education and demonstration on the reduction of waste and proper disposal and effective re-utilization of waste material. People should be informed of the need for waste management to protect the quality of environment. This should be included in the curriculum at schools and colleges level.

9.Value in environmental education must bring in several new concepts, issues which are linked to the quality of human life and go beyond simple economic growth, they must deal with love and respect for nature. The value that will bring about a better humanity, in which we can live healthy, productive and happy lives in harmony with nature.

6.5.4 SUGGESTIONS FOR THE FUTURE RESEARCH

The following were suggestions for future research;

3. A study on various environmental issues and concerns of national and global

importance.

1. study on the need to conserved bio-diversity and need to lead a sustainable life style in Nagaland

2. A study on the relationship between environment and development.

4. A study on the impact of agricultural practices over a period of time in a given locality or village on local environment.

5. A study on sustainable development vis-a-vis improvement of quality of life.

6. A study on the role played by co-curricular actives in creating environmental awareness and attitudinal changes.

7. A study on the role of the individual, community and national agencies in resolving environmental problems.

8 A study on identifying oneself with an attitude to personally contributing towards environmental improvement.

9 A study on the customs and traditions related to local community conservation practices and accept indigenous eco-friendly methods.

10 A study on developing skills to undertake and participate in investigative on various environmental issues.

11 A study on the motivation and participation in social and community activities in dealing with environmental problems.

6.6 CONCLUSION

In conclusion environmental education, positive attitude towards environment and environmental awareness among the students of higher education in the state of Nagaland is very important. The World Environment Day was established by the United Nations General Assembly in 1972 on the day that United Nations Conference on Human Environment began. The first World Environment Day was celebrated in 1973. Since then it is hosted every year by different counties with different themes. World Environment Day falls in spring in the North Hemisphere and fall in the South Hemisphere and mid-summer in the Tropical Regions. Nagaland is vulnerable to climate change. A climate change scenario accentuated by our dwindling forest area, will bring about gradual shifting of plant species to higher altitude and in due course of time some plants species will disappear. There is scarcity of water in different part of the state especially during the winter season. People set fire to forest and destroys the pristine forest of the state. This is happening in many part of the state of Nagaland.

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APPENDIX – I

QUESTIONNAIRE FOR HEAD OF THE INSTITUTIONS

Background:

1. Name: ……..
2. Sex: Male: ☐ Female: ☐
3. Educational qualification: ……..
4. Profession: …….
5. District: ……
6. Name of the institution: ……
7. Government/Private: ……

Questions:

1. Is environmental education included in the college curriculum?

A. Yes ☐

B. No ☐

If Yes (Tick as applicable)

A. As elective subject Yes ☐ No ☐

B. As compulsory subject Yes ☐ No ☐

If No (Give reason)

A. …….

B. …….

C. ……..

2. Does your college have separate teacher for environmental education subject?

A. Yes ☐

B. No ☐

3. List down the areas that you organize on environmental education?

A. ……..

B. ……...

C. ……..

D. ……..

4. Is your college creating awareness activities for the students on environmental problems?

A. Yes ☐

B. No ☐

C. Sometime ☐

5. Does your institution take measures for proper utilization of recycling waste products?

A. Yes ☐

B. No ☐

C. Sometime ☐

6.Are you allowing the teacher and student to get involve with community works in environmental conservation?

A. Yes ☐

B. No ☐

7.Do your college initiate environmental awareness for the local about environmental education like,(Tick as applicable)

A. Environmental post card ☐

B. Environmental bill board ☐

C. Drama's on environmental problem ☐

8.In what way students are involved in community participate on environmental activities like,(Tick as applicable)

A. Mass social work ☐

B. Mass cleanliness drive ☐

C. Mass tree plantation ☐

D. Any other ……

9. Is the authority aware that students and teachers must make aware about healthy environment in the college campus like,(Tick as applicable)

A. No Smoking ☐

B. No Spitting on the wall ☐

C. No Tobacco ☐

D. Any other ……

10. Does your college provide environmental guidance and counseling?

A. Yes ☐

B. No ☐

If 'Yes' (Please specify)

i, ……

ii, ……

iii, ……

iv, ……

If 'No' (Give reason)

i, ……

ii, ……

iii,……

iv, ……

11. Are you aware that environmental destruction and environmental pollution cause various diseases?

A. Yes ☐

B. No ☐

If ‘Yes’ (Please specify)

i, ……

ii,……

iii, ……

If ’No’ (Give reason)

i,…….

ii,……

iii,……

12. Give your opinion on why environmental education is considered an important subject for higher learning.

a. ……

b. ……

c. ……

d. ……

13. State the purpose of your college on environmental education for the students.

a. ……

b. ……

c. ……

d. ……

14. What is your opinion to upgrade environmental education activities in the state of Nagaland.

a. ……

b. ……

c. ……

d. ……

15. As head of the institution, what are the problems you are facing in implementing/creating awareness about environment education.

a……

b. ……..

c. ……

d. ……

16. Suggest ways and means to create awareness and to encourage active participation of the students on environmental education in your state.

a. ……

b. ……

c. ……

d. ……

APPENDIX – II

QUESTIONNAIRE FOR TEACHERS

Background:

1 .Name: .....

2. Sex: Male ☐ Female ☐

3 .Educational qualification: .....

4. Professional: ……

5. District: ……

6. Name of the college: ……

7. Government or Private: ……

Questions:

1.Do you your college have studies on Environmental Education?

A. Yes ☐

B. No ☐

2. Is the syllabus you are following on environmental education effective in developing awareness among students?

A. Yes ☐

B. No ☐

C. cannot say ☐

3. What is student attitude towards environmental education as a subject? (Please specify)

A. ……..

B …….

C. ……

D. ……

4. In order to develop positive attitude towards environment among students. (Give some steps that your institution has taken care)

A. ……..

B. ……...

C. ……..

D. ……..

5. Can you rate the level of student positive attitude towards environment?

A. Very high ☐

B. High ☐

C. Average ☐

D. Below Average ☐

6. Give the level of student positive attitude awareness towards environment?

A. Very high ☐

B. High ☐

C. Average ☐

D. Below average ☐

7. Does your college authority allow student to involve with local community in conserving environment activities?

A. Yes ☐

B. No ☐

C. Some time ☐

8. What kind of environmental study do you carried out in your college? (Tick as many as applicable)

A. Study on soil erosion. (Yes/No/Never/Sometime)

B. Field trip study. (Yes/No/Never/Sometime)

D. Study on deforestation. (Yes/No/Never/Sometime)

E. Study on river water pollution. (Yes/No/Never/Sometime)

F. Any other. …….

9. Do you have any minor research work on environmental education?

A. Yes ☐

B. No ☐

If "Yes" (Please specify the area)

A. ……..

B. ……....

C. ……

If "No" (Please specify the area)

A. ……..

B. ……...

C. ……

10. Are you organizing programs to celebrates important International Environmental Day like, (Tick as applicable)

A. World Earth Day ☐

B. World Environment Day ☐

C. World Population Day ☐

D. World Forest Day ☐

E. World Health Day ☐

F. World Consumer Day ☐

G. World AIDS Day ☐

11. Do you participate in forest and wild life protection and preservation?

A. Yes ☐

B. No ☐

If “yes” (Specify the activities)

a. ……

b. ……

c. ……

If “No” (Give reason)

A. ……

B. ……

C. ……

12. In what way teacher can contribute in the society to control and check environmental pollution and preservation? (Give your statement please)

A. ……

B. ……

C. ……..

D. ……..

13. What are the different types of environmental guidance and counseling you give to your student? (Please specify)

A. ……..

B. ……..

C. ……

D. ……

14. As teacher, point out some specific means of maintenance of healthy environment towards students and college? (Tick as applicable)

A. Civic sense (Yes/No/Never/Sometime)

B. Hygienic surrounding (Yes/No/ Never/Sometime)

C. No Smoking (Yes/No/ Never/ sometime)

D. No chewing Tobacco (Yes/No/Never/Sometime)

E. No spitting on the wall (Yes/No/Never/Sometime)

15. Do students face any environmental problem/issues?

A. Sometime ☐

B. Often ☐

C. Never ☐

16. What are way and means to solve the problems and issues regarding environment? (Tick as applicable)

A. Saving water ☐

B. Saving paper ☐

C. Stop cutting trees ☐

D. Stop burning forest ☐

E. Proper burning of dustbin ☐

F. Reducing use of plastic ☐

17. Can you compare along with academic achievement about the attitude towards environmental education among students?

A. Yes ☐

B. No ☐

18. Is environmental education as a subject is interesting for student?

A. Yes ☐

B. No ☐

C. Cannot say ☐

19. Does your college encourage students to part take in different activities in relation to environmental conservation?

A. Yes ☐

B. No ☐

C. Some time ☐

20. Why environmental education is consider an important subject in higher learning?

C. ……

D. ……

E. ……

21. For what purpose do you take up environmental education subject in your college?

A. ……

B. …….

C. …….....

D. ……

22. List out some environmental activities carried out in your college.

A. ……..

B. ……..

C. …….....

23. Please specify some points to improve environmental education in the state.

A. ……

B. …….

C. …….

D. ……

24. Do you face any problems in teaching environmental education?

A. Yes ☐

B. No ☐

If “Yes” (Please specify)

A. ……

B. ……...

C. ……..

D. …….

25. Please specify some points to improve environmental education in the state.

A. ……

B. …….

C. …….

26. Give some suggestions, how to improve the attitude and awareness of students towards environmental education at higher learning.

A. ……

B. ……..

C. ……..

D. ……

APPENDIX - III

QUESTIONNAIRE FOR STUDENT'S

Background:

1. Name: …….

2. Sex: Male ☐ Female ☐

3. Educational qualification: …….

4. Profession: ……..

5. District: ……..

6. Name of the college: …….

7. Government/Private: ……..

Questions:

1. Is your college having environmental education subject?

   A. Yes ☐

   B. No ☐

2. Does your college provide a separate teacher for environmental education subject?

   A. Yes ☐

   B. No ☐

3. Did you participate in creating awareness program on environmental education?

   A. Yes ☐

   B. No ☐

   C. Some time ☐

4. List down the areas that students participated on environmental education.

   A. ……

   B. ……

C. ……

D. …….

5. Do you organize for proper utilization of waste management in recycling products?

A. Yes ☐

B. No ☐

C. Sometime ☐

6. Is the syllabus you are learning on environmental education is effective to create awareness among students?

A. Yes ☐

B. No ☐

C. Cannot say ☐

7. What is your attitude towards environmental education subject?(Please specify)

A. …….

B. ……

C. …….

9. As student, did you get involve with community work in environmental conservation in your college?

A. Yes ☐

B. No ☐

C. Sometime ☐

10. In which area, students participate with local community on environmental activities?

A. Mass social work ☐

B. Mass cleanliness drive ☐

C. Mass tree plantation ☐

D. Any other ……

11. List down some activities you are involved as students in community participation? (Please specify)

A. ……..

B.…….

C.……..

D.……..

12. Did you face any problems/ issues in participation with local community on environmental activities?

A. Yes ☐

B. No ☐

If' Yes' (State the problem)

A. ……

B. …….

C. ……..

13. Is your college celebrated important International Environmental Day? (Tick as applicable)

A. World Earth Day ☐

B. World Environmental Day ☐

C. World Forest Day ☐

D. World Health Day ☐

E. World Population ☐

F. World AID's Day ☐

14. Do you feel that syllabus on environmental education is not effective?

A. Yes ☐

B. No ☐

If 'No' (Please write for improvement)

A. ……..

B. ……

C. …….

15. Is your college authority create awareness towards healthy environment in the college campus like,

A. No Smoking Yes ☐ No ☐

B. No spitting on the wall Yes ☐ No ☐

C. No Tobacco chewing Yes ☐ No ☐

D. Any other ……..

16. Environmental education as a subject is interesting.

A. Yes ☐

B. No ☐

C. Cannot say ☐

17. What type of mass media is provided by the college to develop awareness about environment among students?

A. News paper ☐

B. Magazine ☐

C. Journal ☐

D. Radio ☐

E. Television ☐

F. Computer ☐

18. Do you think that environmental education as a subject is important for college students?

A. Yes ☐

B. No ☐

If ‘Yes’ (please specify)

A. ……

B. …….

C. ……

If ‘No’ (Give reason)

A. ……

B. ……..

C. ……

19. Beside syllabus, do you face any problem/ issues in learning environmental education?

A. Sometime ☐

B. Often ☐

C. Never ☐

If any problem,(Please specify)

A. …….

B. …….

C. ……..

20. Give some suggestions how to improve the attitude among students toward environmental education at higher learning.

A. …….

B. ……

C. …….

D. …….

21. Suggest ways and means to create awareness about healthy environment.

A …….

B ……

C ……...

D ……......

APPENDIX - IV

QUESTIONNAIRE FOR LOCAL COMMUNITIES

Background:

1. Name: ……

2. Sex: Male ☐ Female ☐

3. Educational qualification: …….

4. Occupation: …….

5. District: …….

6 Name of the organization: ……

7. Government/Private: ……..

Questions:

1. Does your community have the knowledge of environmental importance?

A. Yes ☐

B. No ☐

2. List down the areas that your locality has participated on environmental awareness.

A…….

B. . ……

C ……

D. ……

3. Do your local bodies create an awareness camping for the mass on environmental problems?

A. Yes ☐

B. No ☐

C. Sometime ☐

4. Is there any support group groups like NGO's, Government/Private Organization to create awareness on green policies in your locality?

A. Yes ☐

B. No ☐

5. In your locality do you take measure for proper utilization of waste management?

A. Yes ☐

B. No ☐

C. cannot say ☐

6. Does your locality conduct environmental activities like, (Tick as applicable)

A. Mass social work ☐

B. Mass cleanliness drive ☐

C. Mass tree plantation ☐

D. Any other …….....

7. What is your locality attitude towards the need to conserve bio- diversity?

A. The need to lead more sustainable life styles.

i. Yes ☐

ii. No ☐

iii. Cannot say ☐

C. The need to use natural resources in more equitable manner.

i. Yes ☐

ii. No ☐

iii. Cannot say ☐

8. Mention some of the various diseases that causes through environmental destruction and pollution in your locality/area.

A. ……..

B. ……..

C.…….

D. ……..

9. Can you cite some example that climate change have effected in your locality/area?

A ……

B ……

C ……

10. In your locality, do you have reserve forest and wild life protection and preservation area/territory?

A. Yes ☐

B. No ☐

11. What are the preventive measure that your locality take to control and check environmental pollution and preservation? (Give your statement please)

A. ……

B.. ……

B. ……

C. ……

12. Does your local bodies encourage masses to take part in environmental activities like, (Tick as applicable)

A. Saving trees ☐

B. Tree plantation ☐

C. Recycle waste production ☐

D. Conservation of forest area ☐

E. Buy eco-friendly products ☐

13. Is your locality practicing jhuming cultivation?

A. Yes ☐

B. No ☐

14. Does your community plant trees after jhuming cultivation is done?

A. Yes ☐

B. No ☐

If 'Yes' (Please specify)

A. ……

B. ……

C. ……

If 'No' (Give reason)

A. ……

B. ……

C. ……..

D. ……

15. Why environmental protection and conservation is necessary for human being? (Give your opinion please)

A.……

B.……

C. ……

D.. ……

16. Mention various ways and means that your society has take step measure to protect forest and wild life preservation in your locality/area.

A. ……

B. ……

C. …….

D. ……

17. As community worker, do you face any problem in implementing/ creating awareness about safe environment.

A. ……

B. …….

C. ……

D. ……

18. How to develop positive attitude in your locality towards environmental protection? (Give your suggestion please)

A. ……

B.. ……..

B. …….

D. ……..

19. Suggest ways and means to create environmental awareness to the mass community.

A. . ……

B. . ……

C ……..

APPENDIX – V

Environmental Attitude Scale for College Students

Personal Details

1. Name: .....
2. Gender: .....
3. Educational Qualification: .....
4. Name of the Institution: .....
5. Nature of the Institution (Govt/ Private): .....
6. Local Address: .....
   .....
7. Permanent Address: .....
   .....

Instructions

Provided below are a list of statements regarding your attitude on environmental issues.Read each one carefully and indicate to what extent you agree or disagree with each statement by marking the most appropriate response option according to you. There are no right or wrong answers. Please do not leave out any statement.

S.NO	STATEMENTS	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1.	I want to be more informed about the environment.					
2.	I prefer buying products that are environmentally friendly.					
3.	I often try to convey others about the importance of environment.					
4.	Having factories near residential areas doesnt bother me much.					
5.	I want to support organizations that work for environmental causes.					
6.	Forest fires makes me worry about wildlife and plants.					
7.	Recycling is important for the environment.					
8.	The planet earth has very limited environmental resources.					

S.NO	STATEMENTS	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
9.	I try to conserve electricity whenever possible.					
10.	Plastic bags should be banned in the market.					
11.	Jhum cultivation in Nagaland does not bother me.					
12.	I worry that overpopulation will deplete our environmental resources.					
13.	Plants and animals have as much right to exist as human does.					
14.	I feel that the garbage we dispose does not contaminate the environment too much.					
15.	Hunting of wildlife in Nagaland should be banned.					
16.	I believe that the use of plastic bottles damages the environment.					
17.	It makes me happy when i see people recycle bottles, newspapers and household articles.					
18.	I believe that the Govt should play a more proactive role in conserving the environment.					
19.	I am not much concerned about global warming.					
20.	I like to read articles regarding environmental issues.					
21.	I believe that improper disposal of garbage greatly harms the environment.					
22.	Logging and lumber business in Nagaland makes me worry about deforestation.					

APPENDIX - VI

Environmental Awareness Scale for College Students

Personal Details

1. Name: .....
2. Gender: .....
3. Educational Qualification: .....
4. Name of the Institution: .....
5. Nature of the Institution (Govt./ Private): .....
6. Local Address: .....
   .....
7. Permanent Address: .....
   .....

Instructions

Provided below are a list of statements regarding environmental issues. Read carefully and indicate whether you agree with the statement or not by either marking “yes” or “no” against each one. Please do not leave out any statement.

S.NO	STATEMENTS	YES	NO
1.	Usage of fertilizers, pesticides and insecticides can harm our health.		
2.	Inadequate soil drainage will lead to salination.		
3.	Fossil fuels are non renewable sources of energy.		
4.	Loud noises can cause hearing impairment.		
5.	Global warming is greatly influenced by population growth.		
6.	Water pollution is caused by industrial wastes but not chemical fertilizers.		
7.	Global warming is caused by increased green-house effect.		
8.	Jhum cultivation results in deforestation.		
9.	The discolouration of the Taj Mahal is caused by acidic rain.		
10.	Spraying of DDT produces soil and water pollution but not air pollution.		
11.	Deforestation is the consequence of population growth and economic development.		
12.	Noise pollution can cause stress but not hypertension.		
13.	Some species are unnecessary for the environment.		
14.	Domestic waste (kitchen waste) is biodegradable.		
15.	Organic fruits and vegetables are devoid of any chemicals.		
16.	Acid rain is caused by the excess release of the oxides of Sulphur and Nitrogen.		
17.	Plastic can be decomposed.		
18.	Deforestation causes climate change.		
19.	Examples of bio degradable items include papers and vegetables.		
20.	The pollutants that depletes ozone layer the most are nitrogen oxide and chlorofluoro carbons.		