A STUDY ON ENVIRONMENTAL AWARENESS IN RELATION TO ACADEMIC ACHIEVEMENT ON SOME SELECTED SOCIAL GROUPS IN WEST BENGAL

A THESIS SUBMITTED TO THE UNIVERSITY OF KALYANI FOR THE FULFILMENT OF DEGREE OF DOCTOR OF PHILOSOPHY IN EDUCATION

By

PARIMAL SARKAR

DEPARTMENT OF EDUCATION

UNIVERSITY OF KALYANI

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INDIA

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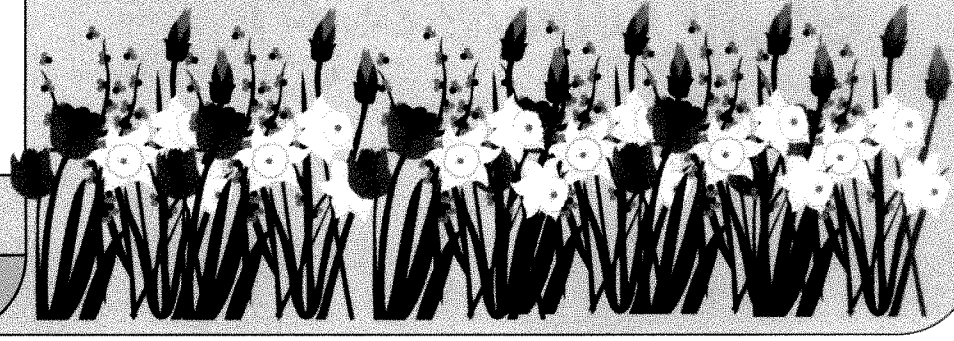
In Memory of

My Father

Late Lalit Mohan Sarkar



Dr. Dibyendu Bhattacharyya
Associate Professor
Department of Education, University of Kalyani
Kalyani, Nadia

CERTIFICATE

This is to certify that the research work entitled "**A Study on Environmental Awareness in relation to Academic Achievement on Some Selected Social Groups in West Bengal**" by Shri Parimal Sarkar for the fulfillment of the requirements of the award of Ph. D. Degree in Education under the Department of Education, University of Kalyani is based on the results of research work accomplished by him. No part of this thesis has been submitted for any other degree. He has completed the research work under my guidance.

Date :

Dr. Dibyendu Bhattacharyya
Associate Professor,
Department of Education,
University of Kalyani

Dr. Shyamsundar Bairagya
M.A. (Eco., Edu. & Envs.), B.Ed., P.G.D.C.S.A., Ph.D.
Head & Associate Professor,
Department of Education
University of Gour Banga
Malda-732103, West Bengal

Mobile: +91 94332 56325
Email: ssb.ku@rediffmail.com
listenssb.ugb@gmail.com

Ref. No.: 007/Ph.D./2012

CERTIFICATE

This is to certify that the research work entitled ***"A STUDY ON ENVIRONMENTAL AWARENESS IN RELATION TO ACADEMIC ACHIEVEMENT ON SOME SELECTED SOCIAL GROUPS IN WEST BENGAL."*** submitted by Shri Parimal Sarkar in fulfillment of the award of Ph. D. Degree in Education under the Department of Education, University of Kalyani is based on the results of research work accomplished by him. No part of this work has been submitted for any other degree or for publication with prior permission as per rule. He has completed the research work under my guidance and supervision. I recommended the thesis be kindly accepted for evaluation for award of Ph.D. in Education of Kalyani University.

Bairagya 14/12/12

Dr. Shyamsundar Bairagya
Head & Associate Professor,
Department of Education,
University of Gour Banga,

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Parimal Sarkar

(Parimal Sarkar)

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CHAPTER – I

INTRODUCTION

CHAPTER – I

INTRODUCTION

1.1 Introduction

The most important landmark for environmental awareness at an international level was without a doubt that International Conference on Environmental Education organized by UNESCO and UNEP at Tbilisi in former USSR in 1977. The goals of environmental awareness were defined by Hannah Hoerisch, April 2002 for CMS ENVIS Centre as creating environmental awareness :

a) impart general knowledge for a basic understanding of environment,

b) acquiring environmental friendly attitudes and

c) values and to generate new patterns of behavior towards environment.

United Nations Conference on Environment and Development in Rio de Janeiro, Brazil in 1992, popularly known as the Earth Summit, adopted an action plan for Sustainable Development, Agenda 21. Chapter 36 which is devoted to education states that "Education is critical for promoting sustainable development and improving the capacity of people to address environment and development issues" for promoting awareness.

The reasons that promote environmental awareness, will focus on the resulting different levels of awareness itself :

Whether level of awareness of environmental problems is higher in more developed countries than in less developed ones ?

The individual's actual behavior towards environment have had make a difference between the way in which people actually behave and their awareness of environmental problems is not sufficient to develop an environmental friendly behavior which ultimately requires Environmental

awareness for self and sustainable development of the Universe too in spite of the question raised above.

1.1.1 Environmental Awareness from Philosophical Perspectives

The Epistemological Framework of Environmental Awareness popularly termed as Environmentalism is a broad philosophy, ideology and social movement regarding concerns for environmental conservation and improvement of the health of the environment, particularly as the measure for this health seeks to incorporate the concerns of non-human elements. Environmentalism advocates the preservation, restoration and or improvement of the natural environment, and may be referred to as a movement to control pollution by awareness as referred from Wikipedia.

Environmentalism is a Conceptual Framework to balance relations between humans being and the various natural systems of Environment on which they depend in such a way that all the components are accorded a proper degree of respect on the basis of Environmental awareness.

1.1.2 Environmentalism as a Social Movement

Environmentalism requires a social movement that seeks to influence the political process, issues, policies and education in order to protect natural resources and ecosystems.

This may include supporting practices in social condition such as informed consumption, conservation initiatives, investment in renewable energy, improved efficiencies in the materials economy, transitioning to new accounting paradigms such as Ecological economics and renewing and revitalizing our connections with non-human life in various ways from the related studies :

1) subjects in the educated group had better perception, more detailed

knowledge, were more aware, and had better attitudes in regard to regional and global environmental problems than those in the community group;

2) more education is needed to develop environmental actions and ethics in developing countries;

3) non-formal environmental education through popular mass media should be used more widely and frequently, and more detailed information on the environment should be provided to literate people by newspapers and other means.

Environmental Awareness can be materialized through a process of recognizing values and clarifying concepts in order to develop skills and added tools necessary to understand and appreciate the inter-relationship among human being. It creates an overall perspective, which acknowledges the fact that natural environment and man-made environment are interdependent.

It should consider the environment in its totality and should be a continuous lifelong process beginning at the pre-school level and continuing through all stages. It should be inter-disciplinary and examine major environmental issues from local, national and international points of view. It should utilize various educational approaches to teach and learn about and from the environment with stress on practical activities and first-hand experience. It is through this process of education that people can be sensitized about the environmental issues.

Some of the major schemes implemented for imparting environmental education and for creation of environmental awareness among the general public are as follows :

1.1.3 Implementation for Imparting Environmental Awareness

i) To promote environmental awareness among different social groups.

ii) To spread environment education, especially in the non-formal system among different sections of the society;

iii) To facilitate development of education/training materials and aids in the formal education sector;

iv) To promote environment education through awareness;

v) To ensure training and manpower development for environment education, awareness and training;

vi) To use different media including films, audio, visual and print, theatre, drama, advertisements, hoarding, posters, seminars, workshops, competitions, meetings etc. for spreading messages concerning environment and awareness; and

vii) To mobilize people's participation for preservation and conservation of environment.

1.2 Environmental Awareness : Background Study

1.2.1 Some Formal and Informal Approach

- To encourage non-governmental organizations, mass media and other concerned organizations for promoting awareness among the people at all levels;
- To promote environment education through existing educational / scientific / research institutions;
- To ensure training and manpower development in environment education; and
- To mobilize people's awareness for the preservation and conservation of environment.

The programmes conducted / initiatives launched as part of this scheme are categorized under formal and non-formal sectors.

- Awareness through Formal Environmental Education.
- Environment Education in School System.
- Awareness through Non-Formal Environmental Education.
- National Environment Awareness Campaign (NEAC).
- Mass Awareness.

1.2.2 Formal Environmental Education for Awareness

The Ministry of Environment & Forests has been interacting with the MHRD, NCERT, State Departments of Education etc. to ensure that environmental components are adequately covered at the school levels by infusion into the school curricula at various levels. The major initiatives taken by the ministry in this direction recently are mentioned below :

1.2.3 Environment Awareness in School System

In 1999, an exercise to strengthen environment education in the formal school curriculum has been undertaken. During the first phase of this project, a comprehensive study was conducted to assess the status of infusion of environment content in the school curriculum in the country and to assess the effectiveness of classroom teaching. The study was conducted in all the States of the country and textbooks of all the classes from standards I to XII were analyzed. Based on the findings of the study, the textbooks in Science, Social Science and Languages of middle school level in eight States (100 schools in each State) are being modified to strengthen the infusion of environmental concepts. The modified textbooks would be used for one academic session (2002–2003) in the selected schools of the selected States on pilot basis. The

concerned teachers of the selected schools would also be trained through formal education which is the mandate of the Ministry of Human Resource effectively teach the modified textbooks. The States participating in this project are Andhra Pradesh, Assam, Goa, Jammu & Kashmir, Maharashtra, Orissa, Punjab and Uttaranchal. Depending upon the success of the pilot implementation, the revised curriculum may be taken up in the remaining schools. The findings of the Phase I study are also being shared with the States / UTs which are not participating in this project so that they can also environmentalise their textbook through Environmental Awareness.

1.2.4 Non-Formal Approach for Environmental Awareness

Non-formal Environment Education and Awareness Environmental Education, Awareness and Training plays a significant role in encouraging and enhancing people's participation in activities aimed at conservation, protection and management of the environment, essential for achieving sustainable development. The Ministry, therefore, accords priority for the promotion of non-formal environment education and creation of awareness among all sections of the society through diverse activities using traditional and modern media of communication.

Despite great efforts to spread environmental awareness by the Ministry through several schemes, it is felt that a large population especially in rural areas is still left out. The best way to reach out to them and make them aware of the environmental problems is through media, particularly the electronic media. "Mass Awareness" has therefore been identified as one of the thrust areas of the Ministry, not only to intensify the efforts already being made in this direction but also to launch new initiatives. The Doordarshan and few other television channels are proposed to be extensively used for telecasting environment based

programmes and infomercials. Professional Media agencies which are hired to assist the Ministry in carrying out the campaign also play a major role.

Emergence of environmental education as a compulsory subject at school level is a welcome development. India can protect and restore environmental and natural resources by spreading awareness on such issues among its citizens. Teaching of environmental education can be an important vehicle.

We have to create awareness about the environment and an attitude of caring and sharing of natural resources in the minds of those children who are the future citizen of our nation. The importance of sensitising students on environmental issues has led the Supreme Court to deliver a judgment on 18th December 2003 and direct NCERT to prepare a model syllabus for environmental education for different classes, which has been prepared under the title 'Environmental Education in Schools, June 2004'. From the academic session 2004–2005, environment education has been introduced as a compulsory subject at all levels in the school curriculum.

1.2.5 Models of Teaching

All these models are specific objective oriented. The work of Bruce Joyce & Marsha Weil (1972) has transformed different theories into different models of teaching, which can be easily used by teachers for classroom teaching in schools. These models are based on dependable theories of teaching established only during last decade.

Generally, a model of teaching consists of six elements termed as fundamental elements, namely focus, syntax principle of reaction, social system, support system and evaluation system. At present there exists a variety of models of teaching, which are based on theories of learning and teaching developed in various fields as referred by Sunila Bhalla Mehan.

1.3 Other Awareness Programs

- An international written Environment Quiz Program known as Green Olympiad conducted by TERI. It is conducted in more than 200 centers across the country. Last year the quiz was conducted in both Hindi and English and more than 70,000 school students from India, Russia and U. A. E. participated in this competition.
- Awareness activities / events by NGOs, academic institutions etc. on the occasion of special Environment days like Earth Day etc.
- Written environmental quiz programs in different regional languages are being started. The winners of written quiz would participate in a televised quiz program.
- Organization of an Annual Vacation Program on Environmental Resources for high school level students namely Vacation program on Natural resources-building a broader constituency of support for conservation by ATREE.

Today environmental degradation and preservation have emerged as major issues in globalization studies. Our environment is being deteriorated every now and then due to various factors like population explosion, uncontrolled and lavish consumption of precious environmental resources, industrialization, urbanization and exploitation of abiotic and biotic components of environment. These have resulted in the present day environment crisis condition. In the past because of lack of awareness about the environment, nations developed in science and technology, but at the expense of degradation of environment. From here it is not surprising that half of the environmental degradations are due to human activities. With the progress in science and technology man has made a lot of revolution in various fields. Man has made a lot of progress through science and technology but at the same time overuse and

misuse of environmental resources is destroying the equilibrium of environment. Man in an effort to fulfill his demands has exploited the environment. The environment has its own system of recovery but depletion of large amount of resources due to the activities of man has failed the self-recovery system of environment in many areas. So it has led to many adverse impacts on the environment.

Therefore, the forms of environmental awareness & the conceptions of nature in different social and cultural context, and the implications of social and cultural differences need to have environmental education. Environmental awareness is conceived as the totality of cognitions, attitudes and action. It is our goal, through empirical analysis and theoretical works, to depend on the theoretical understanding of the forms and dimensions of environmental awareness, particularly to outline the way, structural, cultural & social context and the everyday living environments influences the environmental thinking & the practices of people and social groups.

At the Belgrade International Workshop (1975), it was revealed that environmental awareness is indispensible as the state of the art of environmental education in all parts of the world and provision to extend and explore environmental awareness. It also states Environmental Awareness may provide power and understanding –

- To recognize the interdependence among human being and physical environment. To take decisions individually and collectively an initiative action for social and cultural and economic survival growth and development and for conservation of native natural resources.
- To identity human, material, space and time resources in the environment.
- To recognize ways of making effective use of environmental resources for social, economic and cultural survival growth and development.

- To take decisions for the effective use of resources, to recognize the special significance of conservation of natural resources and initiative for support community efforts for the purpose.

As per directives of the Hon'ble Supreme Court , the N. C. E. R. T. has developed a model syllabus on environmental education for all stages of school education and the name has been published under the title 'Environmental Education in School'(June,2004).

Rajput, J. S (1988) conducted "A research study for identification of teaching skills and training strategies for implementing the environmental approach at primary level" although the study does not reveal the actual sources of environmental awareness.

Objectives of the Study : (i) to produce integrated material for environmental studies (social studies) and environmental studies (science) for class III to IV. (ii) to develop a strategy for teaching environmental studies I and II in class III and IV through the environmental approach and test the relative efficacy of the developed strategies in relation to the methods being used for realization of the objectives of primary education and (iii) to identify teaching skills for the teaching through the environmental approach.

Findings of the Study : (i) the mean scores of environmental awareness for the experimental and the control group at pre-test level indicated that out of the comparison groups in seven schools, nine groups had no significant difference as a result of the treatment, (ii) the result of comparison between the groups and within the groups indicated that out of 14 groups, five groups had no significant differences in both cases, (iii) The significant differences obtained in some groups did not follow any uniform pattern.

Sahanawaj (1990) conducted a study on environmental awareness and environmental attitude of secondary and higher secondary teachers and students

and the study reveals that both the students and teachers section have had their positive attitude towards environment but reality and practices towards environment almost no similarity when the awareness in practice.

Objectives : (i) To determine the extent of awareness about the environment among students and teachers. (ii) To find out the attitude of teachers and students towards the environment. (iii) To find out the differences between teachers and students and male and female groups concerning the environment

Findings of the studies : (i) It was found that 95% of teachers and 94% of students possessed positive environmental attitudes. (ii) The environmental trained teachers and untrained teachers did not differ in their attitudes. (iii) Teachers had more awareness of the environment than students. (iv) Trained and untrained teachers did not differ on environmental awareness. (v) Girls possessed significantly more awareness of the environment than boys.

Praharaj, B (1991) conducted a study on environmental knowledge, environmental attitude & perception regarding environmental education among pre-service and in-service secondary school teachers.

Objectives : (i) To find out the level of environmental knowledge & attitude of pre-service and in-service secondary school teachers. (ii) To study their perception regarding environmental education in the secondary school.

Findings of the Study : (i) The level of environmental knowledge was found low among per-service teachers, although conceptual knowledge was moderate. (ii) Among the in-service teachers, environmental knowledge was moderate and factual knowledge about the environment was low. (iii) Both the groups differ significantly in their level of environmental knowledge. They had a favourable attitude towards environmental education though the in-service groups had a higher level of attitude than that of the pre-service groups. (iv) There was moderate co-relation between environmental knowledge and environmental

attitude. (v) Teachers perceived that environmental education could be a core part of social science , general science and science subjects also in secondary school as well as man media have a potential role to play in imparting environmental education.

Sahool, K. C. (1992) conducted a critical study of the conception and perception of environmental education.

Objectives : (i) to study the concept and constituents of the environment (ii) to study the environment man relationship, (iii) to study the dynamics of the environment and (iv) to renovate the concept of environmental education.

Findings of the study : (i) the concept of the environment is broadly divided as natural and man made types, (ii) flora and fauna constitute the biotic environment, (iii) the atmosphere, hydrosphere and lithosphere constitute the abiotic environment, (iv) man made environments are different types, such as social, economic, political, cultural, aesthetic, historical, geographical, psychological, religious and academic, (v) the fusion of different types of environment from the holistic concept of environment. The relationship between man and environment is symbiotic in nature, (vi) the different stages of evolution — the hunting-gathering stage, the agricultural stage and industrial stage reflect such relationships, (vii) gradually main domination over the environment has created complexities in the man-environment relationship, (viii) efforts are continuing with regard to environment management with focus on unity of life. Sustainable development, human welfare , futuristic and cultural programme, (ix) self management is perceived as the best formula for good environmental management, (x) general workshop, at national and international levels have thrown light on the conceptual analysis of environmental education. Environmental education is a broad concept aid in perceived as lifelong experience for all.

P. N. Mishra and G. Airen (1994) studied on environmental education and revealed that there are many campaigns for environmental awareness and for banning activities that endanger environment. However these are only external and superficial measures that do not get to the root of the problem. Solving environmental problems requires greater co-operation and co-ordination between nations both at the regional level and also worldwide level leading to attitudinal shift among the masses.

V. Sandhu and T. S. Dhillon (2004) made a study of environmental education awareness among elementary school teachers in Punjab. This study was conducted on 1800 elementary school teachers to study their environmental education awareness with respect to their residential backgrounds and subject specialization.

Findings of the Study : Results revealed significant variation in the environmental education awareness with regard to their residential background and subject specialization but no significant variation was observed in relation to the sex of elementary school teachers.

R. C. Sharma (2004) prepared a paper on "Implications of environmental education in teacher education" in New Delhi. Revealed that education, particularly school education could play a greater role by making an impact on the thinking of young minds to protect the universe from deterioration. This paper suggests ways to attract teacher education for bringing out effective changes in school evaluation. Adopting to an inter disciplinary nature. The author suggests, the environmental education should go beyond school boundaries for reacting to all sections of the society.

M. Abraham and N. K. Arjuna (2005) conducted a study on "Environmental interest of secondary school students in relation to their environmental attitude" in Kerala. The environmental interest inventory and the environmental attitude scale constructed and standardized for the purpose of the

present investigation were used for collecting data from a sample of 624 secondary students. The results showed that the secondary school students did not have a high level of environmental interest. A differential effect of gender and locality were observed in their environmental interest, the boys and urban subjects were found to have more interest in environmental matters compared to their rural counterparts. A high positive and significant co-relation was found to exist between environmental interest and environmental attitudes in all the sample groups studied.

The study shows that environmental attitude can create interest and which must have some positive effect.

Kamla Raj (2010) conducted a study on Assessment of Environmental Awareness among Higher Primary School Teachers and the study expressed that teacher should have some more awareness regarding environment.

Objectives : To study the environmental awareness of higher primary school teachers of Mysore City in India

Main Findings : Majority of the teachers had moderate levels of environmental awareness. Female teachers found to have higher levels of environmental awareness compared to male teachers. Teachers in the age groups of 31 to 50 years had higher levels of awareness as compared to other age groups. Teachers working in private schools had higher levels of environmental awareness as compared to teachers working in government schools. The overall analysis revealed though majority of the teachers had moderate awareness, only few of them had high levels of Awareness.

Rajinder Kaur & Manpreet Kaur (2010) conducted a study on environmental awareness level of students of secondary and senior secondary schools.

Objectives : To study the environmental awareness level of students.

Findings : Level of environmental awareness among secondary and senior secondary students

There were 117 items in the EAS and each item was given a credit of '1' point and a 'zero' for wrong answer. The observed means score of the entire sample of secondary and senior secondary students was 88.16 which is quite high. The secondary (M = 88.62) and senior secondary (M = 87.5) students of Patiala district have more awareness regarding the environment. The reason behind it is that Patiala is considered to be the educational hub having all kinds of educational institutions like a university, engineering colleges, medical and dental colleges, various arts and science colleges and numerous schools.

Environmental Awareness may be defined as co-existence of various forms of life on earth both in plant and animal kingdom. Environmental Awareness is the result all the living organisms including man are inter-related and interdependent. They have each evolved out of another in certain conditions with certain structures. Each has a definite number of varieties and geographical spread. One species depends on another for its survival. In fact all the living beings including plants have acquired an ecological balance amongst themselves and based on its survival depends on Environmental Awareness and its right application.

But unfortunately, except scientists and naturalists most of the people of our country are somewhat casual about the problem of Environmental Awareness. Only a few people, though gradually increasing in number are pressing for recognition of the problem and urgent steps for its solution.

To convince the people that it is in their own interest that Environmental Awareness and other natural resources should be maintained, education about ecology among common people is needed. An attitude of consciousness and sympathy from the point of human consideration should be inculcated in their minds from their childhood. Therefore, ecological education should be included

in the primary level as well as in higher level of formal education. Also through informal and mass education, awareness of the people about the situation should be built up and will have to be continued for sustainable development.

1.4 Statement of the Problem

"A STUDY ON ENVIRONMENTAL AWARENESS IN RELATION TO ACADEMIC ACHIEVEMENT ON SOME SELECTED SOCIAL GROUPS IN WEST BENGAL"

1.5 Definition of the Important Terms

1.5.1 Environmental Awareness :

- Knowledge or perception of a situation or fact about Environment : We need to raise public awareness of the issue there is a lack of awareness of the risks regarding Environmental Awareness.
- Concern about and well-informed interest in a particular situation or development : a growing environmental awareness is social awareness developed. **Ref : Awareness in Oxford Dictionaries.**

"Awareness describes a human and animal perception and cognitive reaction to a condition or event. Awareness does not necessarily imply understanding, just as ability to be conscious or feel or perceive".

Wikipedia (The Free Encyclopedia) :

"Awareness focuses on an internal state, such as a visual feeling, or on external event by way of sensory perception. Awareness provides the raw material from which animals develop idea about their experience".

"Environmental awareness means to help social groups and individuals to acquire an awareness of and sensitivity to the total environment and its allied problems". **Dr. Praveen Kumar Jha (1998)**

"Environmental awareness may be defined to help the social groups and individuals to gain a variety of experiences in and acquire a basic understanding of environment and its associated problems". **R.A. Sharma**

Environmental education has been an integral part of our school education and also problems related to the environment are either integrated with different disciplines or introduced as a subject.

The terms environmental education and environmental awareness used interchange for the same meaning but there is significant difference in these two terms, environmental awareness may be defined as to help the social groups and individual to gain a variety of experiences in and acquire a basic understanding of environment and its associated problems.

1.5.2 Social Groups :

Four social groups have been selected for conducting the study 1) S. C. 2) S. T. 3) O. B .C. 4) General.

A social group is a collection of people who interact with each other and share similar characteristics and a sense of unity. A social category is a collection of people who do not interact but who share similar characteristics. For example, women, men, the elderly, and high school students all constitute social categories. A social category can become a social group when the members in the category interact with each other and identify themselves as members of the group. In contrast, a social aggregate is a collection of people who are in the same place, but who do not interact or share characteristics.

Psychologists **Muzafer** and **Carolyn Sherif**, in a classic experiment in the 1950s, divided a group of 12-year-old white, middle-class boys at a summer camp into the "Eagles" and the "Rattlers." At first, when the boys did not know one another, they formed a common social category as summer campers. But as time passed and they began to consider themselves to be either Eagles or Rattlers, these 12-year-old boys formed two distinct social groups.

Informative Pictures from Internet

The Scheduled Castes (SCs) and the Scheduled Tribes (STs) are two groups of historically disadvantaged people that are given express recognition in the Constitution of India. During the period of British rule in the Indian sub-continent they were known as the Depressed Classes (Source : Wikipedia).

The Scheduled Castes and Scheduled Tribes make up around 15% and 7.5% respectively of the population of India, or around 24% altogether, according to the 2001 Census. The proportion of Scheduled Castes and Scheduled Tribes in the country's population has steadily risen since independence in 1947.

The Constitution (Scheduled Castes) Order, 1950 lists 1,108 castes across 25 states in its First Schedule, while the Constitution (Scheduled Tribes) Order, 1950 lists 744 tribes across 22 states in its First Schedule.

Since independence, the Scheduled Castes, Scheduled Tribes and Other Backward Classes (all three categories combined together constitute about 85 percent of India's population) were given provision of "Reservation" policy. The reservation policy became an integral part of the Constitution through the efforts of Dr. Bhimrao Ambedkar, father of Modern India and architect of the Indian Constitution; he participated in Round Table Conferences and fought for the rights of the Oppressed and Depressed Classes. The Constitution lays down general principles for the policy of affirmative action for the SCs and STs.

History

From the 1850s these communities were loosely referred to as the "Depressed Classes", and they are also referred to as Adivasis (original inhabitants). The early part of the 20th century saw a flurry of activity in the British Raj to assess the feasibility of responsible self-government for India. The Morley-Minto Reforms Report, Montagu-Chelmsford Reforms Report, and the Simon Commission were some of the initiatives that happened in this context. One of the hotly contested issues in the proposed reforms was the reservation of seats for the "depressed" classes in provincial and central legislatures.

In 1935, the British passed the Government of India Act 1935, designed to give Indian provinces greater self-rule and set up a national federal structure. Reservation of seats for the Depressed Classes was incorporated into the act, which came into force in 1937. The Act brought the term "Scheduled Castes" into use, and defined the group as including "such castes, races or tribes or parts of groups within castes, races or tribes, which appear to His Majesty in Council to correspond to the classes of persons formerly known as the 'Depressed Classes', as His Majesty in Council may prefer". This discretionary definition was clarified in The Government of India (Scheduled Castes) Order, 1936, which contained a list, or Schedule, of castes throughout the British administered provinces.

After independence, the Constituent Assembly continued the prevailing definition of Scheduled Castes and Tribes, and gave (via articles 341, 342) the President of India and Governors of states responsibility to compile a full listing of castes and tribes, and also the power to edit it later as required. The actual complete listing of castes and tribes was made via two orders The Constitution (Scheduled Castes) Order, 1950, and The Constitution (Scheduled Tribes) Order, 1958 respectively.

Constitutional Framework for Safeguarding of Interests

The Constitution provides a framework with a three pronged strategy to improve the situation of SCs and STs.

1. Protective Arrangements : Such measures as are required to enforce equality, to provide punitive measures for transgressions, to eliminate established practices that perpetuate inequities, etc. A number of laws were enacted to operationalize the provisions in the Constitution. Examples of such laws include The Untouchability Practices Act, 1955, Scheduled Caste and Scheduled Tribe (Prevention of Atrocities) Act, 1989, The Employment of Manual scavengers and Construction of Dry Latrines (Prohibition) Act, 1993, etc.
2. Affirmative action : provide positive preferential treatment in allotment of jobs and access to higher education, as a means to accelerate the integration of the SCs and STs with mainstream society. Affirmative action is also popularly referred to as Reservation.
3. Development : Provide for resources and benefits to bridge the wide gap in social and economic condition between the SCs/STs and other communities.

National Commissions

To effectively implement the various safeguards built into the Constitution and other legislations, the Constitution, under Articles 338 and 338A, provides for two statutory commissions – the National Commission for Scheduled Castes and National Commission for Scheduled Tribes.

History

In the original Constitution, Article 338 provided for a Special Officer, called the Commissioner for SCs and STs, to have the responsibility of monitoring the effective implementation of various safeguards for SCs / STs in

the Constitution as well as other related legislations and to report to the President. To enable efficient discharge of duties, 17 regional offices of the Commissioner were set up all over the country.

In the meanwhile there was persistent representation for a replacement of the Commissioner with a multi-member committee. It was proposed that the 48th Amendment to the Constitution be made to alter Article 338 to enable said proposal. While the amendment was being debated, the Ministry of Welfare issued an administrative decision to establish the Commission for SCs / STs as a multi-member committee to discharge the same functions as that of the Commissioner of SCs / STs. The first commission came into being in August 1978. The functions of the commission were modified in September 1987 to advise Government on broad policy issues and levels of development of SCs / STs.

In 1990 that the Article 338 was amended to give birth to the statutory National Commission for SCs and STs via the Constitution (Sixty fifth Amendment) Bill, 1990. The first Commission under the 65th Amendment was constituted in March 1992 replacing the Commissioner for Scheduled Castes and Scheduled Tribes and the Commission set up under the Ministry of Welfare's Resolution of 1989.

In 2003, the Constitution was again amended to split the National Commission for Scheduled Castes and Scheduled Tribes into two separate commissions – the National Commission for Scheduled Castes and the National Commission for Scheduled Tribes.

Distribution

According to the 61st Round Survey of the NSSO, almost nine-tenths of Buddhists in India belonged to scheduled castes of the Constitution while one-third of Christians belonged to scheduled tribes. Major part of scheduled castes

were Hindus by religion but belonged to castes and tribes having low population. The Sachar Committee report of 2006 also confirmed that members of scheduled castes and tribes of India are not exclusively adherents of Hinduism.

Religion	Scheduled Caste	Scheduled Tribe
Buddhism	89.50%	7.40%
Christianity	9.00%	32.80%
Sikhism	17.0%	0.90%
Hinduism	22.20%	9.10%
Gond	–	15.90%
Jainism	–	2.60%
Islam	0.80%	0.50%

Scheduled Caste Sub-Plan

The strategy of Scheduled Castes Sub-Plan (SCSP) of 1979 is an important intervention that mandates a planning process for social, economic, and educational development of Scheduled Castes and for improvement in their working and living conditions. It is an umbrella strategy that ensures flow of targeted financial and physical benefits from general sectors of development for the benefit of Scheduled Castes. Under this strategy, population. It entails targeted flow of funds and associated benefits from the annual plan of States / Union Territories (UTs) at least in proportion to the SC population i.e. 16% in the total population of the country / the particular state. Presently, 27 States / UTs having sizeable SC populations are implementing Scheduled Castes Sub-Plan. Although the Scheduled Castes population, according to 2001 Census, was 16.66 crores constituting 16.23% of the total population of India, the allocations made through SCSP in recent years have been much lower than the population proportion.

From Wikipedia, the Free Encyclopedia (November 2011)

The Mandal Commission was established in India in 1979 by the Janata Party government under Prime Minister Morarji Desai with a mandate to "identify the socially or educationally backward". It was headed by Indian parliamentarian Bindheshwari Prasad Mandal to consider the question of seat reservations and quotas for people to redress caste discrimination, and used eleven social, economic, and educational indicators to determine backwardness. In 1980, the commission's report affirmed the affirmative action practice under Indian law whereby members of lower castes (known as Other Backward Classes (OBC) and Scheduled Castes and Tribes) were given exclusive access to a certain portion of government jobs and slots in public universities, and recommended changes to these quotas, increasing them by 27% to 49.5 mobilization on caste lines had followed the political empowerment of ordinary citizens by the constitution of free India that allowed common people to politically assert themselves through the right to vote.

Setting up of Mandal Commission

The plan to set up another Commission was taken by the Morarji Desai government in 1978 as per the mandate of the Constitution of India under article 340 for the purpose of Articles like 15 and 16. The decision was made official by the President on 1st January 1979. The Commission is popularly known as the Mandal Commission with its chairman being B. P. Mandal.

Criteria to identify OBC

The Mandal Commission adopted various methods and techniques to collect the necessary data and evidence. The commission adopted 11 criteria which could be grouped under three major headings: social, educational and economic in order to identify OBCs.

Social

1. Classes considered as socially backward by others.
2. Classes which mainly depend on manual labour for their livelihood.
3. Classes where at least 25 percent females and 10 percent males above the state average get married at an age below 17 years in rural areas and at least 10 percent females and 5 percent males do so in urban areas.
4. Classes where participation of females in work is at least 25 percent above the state average.

Educational

1. Classes where the number of children in the age group of 5–15 years who never attended school is at least 25 percent above the state average.
2. Classes where the rate of student drop-out in the age group of 5–15 years is at least 25 percent above the state average.
3. Classes amongst whom the proportion of matriculates is at least 25 percent below the state average.

Economic

1. Classes where the average value of family assets is at least 25 percent below the state average.
2. Classes where the number of families living in kuccha houses is at least 25 percent above the state average.
3. Classes where the source of drinking water is beyond half kilometer for more than 50 percent of the households.
4. Classes where the number of households having taken consumption loans is at least 25 percent above the state average.

Also known as "Creamy layer," this criteria of separation is ignored by the government which is known as the most controversial issue of reservation.

Weighting Indicators

As the above three groups are not of equal importance for the purpose, separate weightage was given to indicators in each group. All the social indicators were given a weightage of 3 points each, educational indicators were given a weightage of 2 points each and economic indicators were given a weightage of 1 point each. Economic, in addition to social and educational indicators, were considered important as they directly flowed from social and educational backwardness. This also helped to highlight the fact that socially and educationally backward classes are economically backward also.

It will be seen from the values given to each indicator, the total score adds up to 22. All these 11 indicators were applied to all the castes covered by the survey for a particular state. As a result of this application, all castes which had a score of 50% (i.e. 11 points) were listed as socially and educationally backward and the rest were treated as 'advanced'.

Observations :

The commission estimated that 54% of the total population (excluding SCs and STs), belonging to 3,743 different castes and communities were 'backward'. Figures of caste-wise population are not available beyond. So the commission used 1931 census data to calculate the number of OBCs. The population of Hindu OBCs was derived by subtracting from the total population of Hindus, the population of SC and ST and that of forward Hindu castes and communities, and it worked out to be 52 percent. Assuming that roughly the proportion of OBCs amongst non-Hindus was of the same order as amongst the Hindus, population of non-Hindu OBCs was also considered as 52 percent.

- Assuming that a child from an advanced class family and that of a backward class family had the same intelligence at the time of their birth, it is obvious that owing to vast differences in social, cultural and environmental factors, the former will beat the latter by lengths in any competitive field. Even if a backward class child's intelligence quotient was much higher as compared to the child of advanced class, chances are that the former will lag far behind the latter in any competition where selection is made on the basis of 'merit'.
- In fact, what we call 'merit' in an elitist society is an amalgam of native endowments and environmental privileges. A child from an advanced class family and that of a backward class family are not 'equals' in any fair sense of the term and it will be unfair to judge them by the same yard-stick. The conscience of a civilized society and the dictates of social justice demand that 'merit' and 'equality' are not turned into a fetish and the element of privilege is duly recognized and discounted for when 'unequal' are made to run the same race.
- To place the amalgams of open caste conflicts in proper historical context, the study done by Tata institute of Social Sciences Bombay observes. "The British rulers produced many structural disturbances in the Hindu caste structure, and these were contradictory in nature and impact .... Thus, the various impacts of the British rule on the Hindu caste system, viz., near monopolization of jobs, education and professions by the literati castes, the Western concepts of equality and justice undermining the Hindu hierarchical dispensation, the phenomenon of Sanskritization, genteel reform movement from above and militant reform movements from below, emergence of the caste associations with a new role set the stage for the caste conflicts in modern India. Two more ingredients which were very weak in the British period, viz., politicization of the masses and universal adult franchise, became powerful moving forces after the Independence.

Recommendations

The report of the commission was submitted in December 1980. The following are the recommendations as stated in the report:

It may appear the upliftment of Other Backward Classes is part of the larger national problem of the removal of mass poverty. This is only partially correct. The deprivation of OBCs is a very special case of the larger national issue: here the basic question is that of social and educational backwardness and poverty is only a direct consequence of these two crippling caste-based handicaps. As these handicaps are embedded in our social structure, their removal will require far – reaching structural changes. No less important will be changes in the perception of the problems of OBCs by the ruling classes of the country.

Implementation

All the recommendations of the report are not yet implemented. The recommendation of reservations for OBCs in government services was implemented in 1993. As on 27 June, 2008 there is still a backlog of 28,670 OBC vacancies in government jobs. The recommendation of reservations in Higher educational institutes was implemented in 2008.

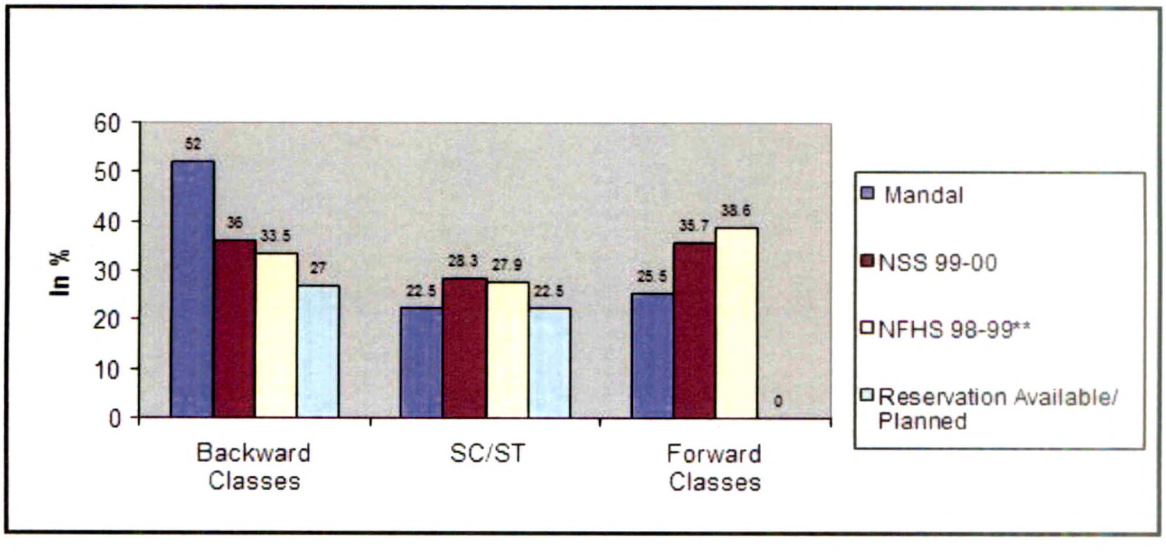

Fig. 1 : Population Estimation and Reservation % of Various Communities

NFHS Survey estimated only Hindu OBC population. Total OBC population derived by assuming Muslim OBC population in same proportion as Hindu OBC population

The National Sample Survey puts the figure at 32%.There is substantial debate over the exact number of OBC's in India, with census data compromised by partisan politics. It is generally estimated to be sizable, but lower than the figures quoted by either the Mandal Commission or and National Sample Survey.

There is also an ongoing controversy about the estimation logic used by Mandal Commission for calculating OBC population. Famous Indian Statistician, Mr. Yogendra Yadav who supports Reservations agrees that there is no empirical basis to the Mandal figure. According to him "It is a mythical construct based on reducing the number of SC / ST, Muslims and others and then arriving at a number".

National Sample Survey's 1999–2000 round estimated around 36 percent of the country's population is defined as belonging to the Other Backward Classes (OBC). The proportion falls to 32 percent on excluding Muslim OBCs. A survey conducted in 1998 by National Family Health Statistics (NFHS) puts the proportion of non-Muslim OBCs as 29.8 percent

L. R. Naik, the only Dalit member in the Mandal Commission refused to sign the Mandal recommendations. He said that there are two social blocks among the OBCs: upper caste (Jat and Gujjar) and upper OBCs (Yadavs, Kurmis, etc.) and Most Backward Classes (MBCs). He feared that upper OBCs would corner all the benefits of reservation.

A decade after the commission gave its report, V.P. Singh, the Prime Minister at the time, tried to implement its recommendations in 1989. The criticism was sharp and colleges across the country held massive protests

against it. Soon after, Rajiv Goswami, student of Delhi University, committed self-immolation in protest of the government's actions. His act further sparked a series of self-immolations by other college students and led to a formidable movement against job reservations for Backward Castes in India. First student to die due to self-immolation was Surinder Singh Chauhan on Sep 24, 1990.

Arguments of the Opponents against the Issue :

- Allocating quotas on the basis of caste is a form of racial discrimination, and contrary to the right to equality. Although the exact relation between caste and race is far from well established
- As a consequence of legislating to provide reservations for Christians and Muslim, religious minorities in all government education institutions will be introduced which is contrary to the ideas of secularism, and is a form of anti-discrimination on the basis of religion.
- Most often, only economically sound people (and rather rich) from the so-called lower castes will make use of most of the reserved seats, thus counteracting the spirit of reservations. Political parties know reservations are no way to improve the lot of the poor and the backward. They support them because of self-interest of the "creamy layer", who use the reservations to further their own family interests, and as a political flag of 'achievement' during election campaigns. Several studies show that the OBC class is comparable with the general caste in terms of annual per capita consumption expenditure, and the top strata of OBC is ahead in a host of consumption areas.
- The quality of these elite institutes may go down, because merit is severely being compromised by reserving seats for certain caste-based communities.
- There are no efforts made to give proper primary education to truly deprived classes, so there is no need to reserve seats for higher studies. The

government schools in India have absolutely no comparison to the public schools in the developed countries, and only about 65% of the Indian population is literate. The critics argue that "reservation" only in higher institutions and jobs, without improving primary and secondary education, cannot solve this problem.

- The government is dividing people on the basis of castes for political advantages.
- The caste system is kept alive through these measures. Instead of coming up with alternative innovative ideas which make sure equal representation at the same time making the caste system irrelevant, the decision is only fortifying the caste system.
- The autonomy of the educational institutes are lost.
- Not everyone from the so-called upper classes are rich, and not all from so called lower classes are poor.
- The reservation policy will create a huge unrest in the Indian society. Providing quotas on the basis of caste and not on the basis of merit will deter the determination of many educated and deserving students of India.
- Multi-national companies will be deterred by this action of the government, and foreign investment in India may dry down, hurting the growth of the Indian economy. Doubtless, urgent actions to improve the lot of the majority, which has not benefited from development—not achieved after 55 years of reservations for scheduled castes are essential. But this must not hazard improving the economy's competitiveness in a very competitive world.
- There are already talks of reservations in the private sector. If even after providing so many facilities to reserved categories during education, if there is no adequate representation of those people in the work force, there must be some problems with the education system.

Critics of the Mandal Commission argue that it is unfair to accord people special privileges on the basis of caste, even in order to redress traditional caste discrimination. They argue that those that deserve the seat through merit will be at a disadvantage. They reflect on the repercussions of unqualified candidates assuming critical positions in society (doctors, engineers, etc.). As the debate on OBC reservations spreads, a few interesting facts which raise pertinent question are already apparent. To begin with, is there any clear idea what proportion of our population is OBC ? According to the Mandal Commission (1980) it is 52 percent. According to 2001 Indian Census, out of India's population of 1,028,737,436 the Scheduled Castes comprise 166,635,700 and Scheduled Tribes 84,326,240, that is 16.2% and 8.2% respectively. There is no data on OBCs in the census. However, according to National Sample Survey's 1999-2000 round around 36 percent of the country's population is defined as belonging to the Other Backward Classes (OBC). The proportion falls to 32 percent on excluding Muslim OBCs. A survey conducted in 1998 by National Family Health Statistics (NFHS) puts the proportion of non-Muslim OBCs as 29.8 percent. The NSSO data also shows that already 23.5 percent of college seats are occupied by OBCs. That's just 8.6 percent short of their share of population according to the same survey. Other arguments include that entrenching the separate legal status of OBCs and SC / STs will perpetuate caste differentiation and encourage competition among communities at the expense of national unity. They believe that only a small new elite of educated Dalits, Adivasis, and OBCs benefit from reservations, and that such measures don't do enough to lift the mass of people out of poverty.

Academic Achievement :

Academic Achievement has been measured of the subjects at their last final examination. Namely marks of tenth grade secondary level examination

has been considered as index of their Academic Achievement.

Academic achievement or (academic) performance is the outcome of education — the extent to which a student, teacher or institution has achieved their educational goals.

Academic achievement is commonly measured by examinations or continuous assessment but there is no general agreement on how it is best tested or which aspects are most important — procedural knowledge such as skills or declarative knowledge such as facts and others as revealed from Wikipedia.

1.6 Objectives :

The study was conducted with the following objectives :

1. To study the Environmental Awareness and its influences on different social groups.
2. To study the different aspects of Environmental Awareness.
3. To determine the attitude of different social groups towards Environmental Awareness.
4. To understand Environmental Awareness towards conservation of biodiversity.
5. To prepare and standardize a suitable tool for assessment of Environmental Awareness.
6. To study the impact of Environmental Awareness on different social groups in relation to their Academic Achievement.

1.7 Significance of the Study

1. The study throws light on a very recent and most important dimensions regarding Environmental Awareness among different social groups.

2. Through the study, different aspects of Environmental Awareness are discussed for ensuring the relationship among them.
3. The awareness about Environmental Awareness is being accelerated on its proper application and attitude.
4. In this study, regarding Environmental Awareness with different types of people and groups in our society are also revealed.

1.8 Dimensions of the Study

1) Knowledge.

2) Attitude.

3) Involvement.

4) Values.

1.9. Tool

The questionnaire constructed by the researcher was used as a tool in the study.

1.10 Sample and Population

The researcher has collected the samples for his research work from rural and urban high secondary schools. Out of 800 samples from 11^{th} grade students of 16 schools selected purposively from four districts namely Nadia, North 24-Parganas, Hooghly and Murshidabad in West Bengal. From the total sample 200 were S. C. of whom 100 subjects were taken from urban area and 100 subjects from rural area. 200 subjects were S.T. having 11^{th} grade education of whom 100 were from urban area and 100 from rural area. 200 subjects were from O. B. C. of whom 100 were from urban area and 100 from rural area and

finally 200 subjects were from General category and similarly 200 samples are selected randomly out of 800 each of 100 boys and girls for testing Hypotheses.

1.11 Delimitation of the Study :

The study was delimited in terms of samples, content and tools. The delimitations are as follows :

- The study was conducted on selected social groups only.
- Four groups were selected randomly.
- These four social groups have been selected for conducting the study which are 1) S. C. 2) S. T. 3) O. B. C. 4) General.
- The study was delimited to four districts namely Nadia, North 24-Parganas, Hooghly and Murshidabad in West Bengal.
- Only 11^{th} grade students from 16 higher secondary schools of West Bengal Council of Higher Secondary Education were taken.

CHAPTER – II

REVIEW OF RELATED STUDIES

CHAPTER – II

REVIEW OF RELATED STUDIES

2.1 Environmental Awareness through Educational Domain

- Development of educational aids in the formal education sector with the application of environment and surroundings;
- To encourage non-governmental organizations, mass media and other concerned organizations for promoting awareness among the people at all levels and the educational sector;
- To promote environment education through existing educational / scientific / research institutions;
- To ensure training and manpower development in environment education and
- To mobilize people's awareness for the preservation and conservation of environment.

2.1.1 Programmes under Formal Environmental Education

- Environment Education in School System.
- Environmental Appreciation Courses.
- Environmental Concepts in Management and Leadership in Educational Institutions.

Environment Education in School System

Under this project, which was initiated in 1999, an exercise to strengthen environment education in the formal school curriculum has been undertaken. During the first phase of this project, a comprehensive study was conducted to

assess the status of infusion of environment content in the school curriculum in the country and to assess the effectiveness of classroom teaching.

The study was conducted in all the States / UTs of the country and textbooks of all the classes from standards I to XII were analysed. Based on the findings of the study, the textbooks in Science, Social Science and Languages of middle school level in eight States (100 schools in each State) are being modified to strengthen the infusion of environmental concepts. The modified textbooks would be used for one academic session (2002–2003) in the selected schools of the selected States on pilot basis. The concerned teachers of the selected schools would also be trained to effectively teach the modified textbooks.

The States participating in this project are Andhra Pradesh, Assam, Goa, Jammu & Kashmir, Maharashtra, Orissa, Punjab and Uttaranchal. Depending upon the success of the pilot implementation, the revised curriculum may be taken up in the remaining schools. The findings of the Phase I study are also being shared with the States / UTs which are not participating in this project so that they can also environmentalism their textbooks through Environmental Appreciation Course

2.1.2 Programmes under Non-Formal Environmental Education

- National Environment Awareness Campaign (NEAC).
- Eco-clubs (NGC).
- GLOBE.
- Mass Awareness.

Non-formal Environment Education and Awareness

Environmental Education, Awareness and Training plays a significant role in encouraging and enhancing people's participation in activities aimed at

conservation, protection and management of the environment, essential for achieving sustainable development. The Ministry, therefore, accords priority for the promotion of non-formal environment education and creation of awareness among all sections of the society through diverse activities using traditional and modern media of communication. Some of the major activities undertaken in this regard are as follows :

National Environment Awareness Campaign (NEAC)

The NEAC was launched in mid 1986 with the objective of creating environmental awareness at the national level. It is a multi-media campaign which utilises conventional and non-conventional methods of communication for disseminating environmental messages to a wide range of target groups.

These activities which include seminars, workshops, training programmes, camps, exhibitions, essay / debate / painting / poster competitions, folk dances and songs, street theatre, puppet shows, preparation and distribution of environmental education resource materials etc., are followed by action like plantation of trees, management of household waste, cleaning of water bodies etc. Diverse target groups encompassing students, youth, teachers, tribals, farmers, other rural population, professionals and the general public are covered under NEAC. The programme is being implemented through 28 designated Regional Resource Agencies (RRAs) for specific states/regions of the country. The list of these RRAs along with their addresses is given at the end. The applications for participation in this programme are invited every year through advertisement in major national and regional newspapers during the months of May / June. Any additional information can be obtained from the concerned regional resource agency.

Eco-clubs (National Green Corps)

The main objectives of this programme are to educate children about their immediate environment and impart knowledge about the eco-systems, their inter-dependence and their need for survival, through visits and demonstrations and to mobilise youngsters by instilling in them the spirit of scientific inquiry into environmental problems and involving them in the efforts of environmental preservation.

Since the modification of the scheme in 1993, more than 10,000 Eco-clubs had been provided grants until 2000–2001 in various parts of the country. Considering that the total number of schools covered were grossly inadequate compared to the total number of schools in the country and keeping in view the potential of this programme in sensitizing the school students. It was decided to intensify this programme to cover each and every district of the country.

A programme of raising 'National Green Corps' through the Eco clubs was, therefore, launched during 2001–2002. Under this programme, Eco-clubs are being set up in 100 schools of each District of the country. 47,000 Eco-clubs have been set up so far in the country. This programme is being implemented in each State / UT through the Nodal agency appointed by the State / UT Govt.

Environmental Awareness can be generated with the following : (1) to identify the philosophy of environmental education. School system from the perspective of the school management; (2) to determine the characteristics among schools members that are likely to influence the environmental awareness; (3) to determine the effectiveness of school-based environmental awareness programmes in order to enhance self-regulated strategies to school members; (4) to discover school members' attitudes towards the extensive environmental awareness programmes introduced by the respective authorities; and (5) to develop an environmental awareness suggestions.

All these approaches will assist us in analyzing how far they impact on 'the betterment of the personal well-being, family, society and the nation, as stated in the National Philosophy of Education by referring to the importance of having environmental awareness.

One of basis within the National Philosophy of Education is regarding the element of knowledge, which is the value of the knowledge itself, as well as the role of the premise within the development of individual and the society. The significance of knowledge comes from the basic truth of the knowledge that is not only functions to provide the explanation and information, but the most important, knowledge emerges as the medium in influencing, developing, and also shaping the notion of human and the society itself. This element has make knowledge gain its high value.

As the fundamental concept within the realm of academic, National Philosophy of Education focuses towards the factor of individual within several relation and connection. This is applicable with the element of National Philosophy of Education which is the appreciation towards the creative education such as environmental awareness, since the objective of education is not solely based on the development and the tranquility of human itself, but also includes the improvement of the whole society, nation as well as the harmony of the environment.

National Philosophy of Education focused on the aspect of producing the holistic and balanced individual, which appear as the knowledgeable, responsible, as well as well-mannered individual that able to appreciate their surrounding. Thus, in relating to this aspect, the environmental awareness is the supportive element that should be implemented among the students in fulfilling the aspiration of National Philosophy of Education. It is because, the individuals that able to remain the healthiness of their surrounding would be able to keep the good relation with the society. This is one of the factors which show that the

environmental awareness has been adapted within the National Philosophy of Education.

By looking at the scopes and the impacts of environmental problems, this phenomenon has become very important issues on the international agenda since 1990s (Madruga, K., and Batalha da Silveira, C.F., 2003). As being capable to affect human beings and all living species (Gore, 1993 in Özden, M., 2008), this nature's catastrophe had brought the serious implication towards the earth such as choking air pollution, water pollution in the vast majority of rivers, water shortages throughout much of the country, ocean pollution, mountains of solid and toxic waste, acid deposition spoiling land and water, destruction of the remaining scattered habitats, near-total deforestation, rampant overfishing, depletion of agricultural land, and conspicuous consumption of even highly endangered species for food and traditional medicine (Harris, P. G., 2006).

The issues of environment are the effect from the human's activities that have no civic conscious and only think the profit without concern about the impact towards the environment and their future of life. The long term effect from the environmental pollution can be seen when the ecosystem is not able to endure the pollution (Zaini Ujang, 2008). According to Sardar and Ziauddin (1985), the major cause of this ecological crisis is regarding the value and belief in shaping human's relation with the surrounding and the lifestyle itself.

Realizing of the extremely expanded environmental catastrophe, a preventive way should be carried out to slow it and thereby mitigating long-term environmental damage (Harris, P. G., 2006).

Thus, one of the best ways of preservation is by creating environmental awareness among society especially students as they are future leaders, future custodians, planners, policy makers, and educators of the environment and its issues (Thapa, B., 1999). Students are also the right aim as they were the one

who's responsible to fulfill and realize the aspiration of the National Philosophy of Education (NPE) to develop high levels of personal well-being towards contribution to the harmony of society and nation (Curriculum Development Centre, 1990).

2.2 Environmental Awareness from the Aspect of Education

Environment is the combination of living things and closely related to the element of nature such as human, animal, as well as plants. Through this connection, there are such doctrines and beliefs from the aspect of philosophy regarding the emergence of this universe, and it has develop an awareness within humans self towards their responsibility to take care of the environment.

2.2.1 Environmental Awareness from the Aspect of Pragmatic Outlook

It has been agreed by many philosophers that education and awareness towards environmental protection and conservation require knowledge, understanding, and the change of attitude by each individual. Within the context of education, it is the process to solve the problem which is needed to be implemented among the students since their primary school, as it able to provide them with then technique in dealing the difficulty within their life.

This element is supported by the idea of western philosophy, which is the pragmatism movement. The philosophers believe that the role of adolescent and adult in taking care of the environment is different based on their development of age (Mak SoonSang, 2000). This philosophy presumes that knowledge can be acquired from the relation betweenhuman and nature, as both elements are interconnected (Abd. Rahman Aroff and Zakaria Kasa, 1987).

Thus, within the context of education, the implementation of the environmental values among the students can be carried out by giving them the

experience through the basic activities such as working together to remain the healthy environment and expose them with the impact of environmental pollutions. For instance, there are several ideology and philosophy that has been introduced, such as the programme of "green consumerism" by the consumer association and "green chemistry" that introduced by the chemist in order to reduce the effect of environmental damage (Zaini Ujang, 2008).

Through these activities, it shows that the students are not only trained from the aspect of their intellect and physical, but also from the element of spiritual and emotion through their courage and appreciation towards the programmes.

In addition, based on the doctrine of pragmatism towards the issue of environmental awareness, they believe that the speculation regarding the reality is useless, as the experience of human mainly exemplify the reality (Abd. Rahman Aroff and Zakaria Kasa, 1987). By looking at the present, the aspects of experience and students are the social organisms that are constantly interact with the surrounding, and change based on time and condition. Thus, the implementation and appreciation towards moral and value which involve the students within the activity and environment are more significant than the learning activity solely based on theory.

It is because, the real achievement of students is based on their ability to cope with their problem, including the aspects of academic and the environmental aspect. By involving the students with the activity regarding the cleanliness of the school, students are implemented with the attitude to love and concern towards their school and the surrounding (Yahya Don, 2005).

The knowledge that have been gained by these students is very useful

within their life, as the function of knowledge towards the students is the beginning of intelligence and become the last objective of education (Abdul Fatah Hassan, 2001).

On the other hand, based on realism of epistemology, knowledge is a process to discover a thing and new phenomenon, and the process should relate with the physical object that exist within the actual life, and be able to examine through human sense. According to this epistemology, the accurate knowledge is the knowledge that relate with the physical nature. This epistemology also focuses on the development of students' potency, as well as encourages them towards rational thought and activity within the realm of education. For instance, the science teacher can provide the knowledge, and at the same time ask the students to think on the greatest of God through the appreciation towards the nature. The students should be trained and guided to look at the creation of God which able to amaze and create the feeling of fear towards God within themselves. Thus, to produce a firm and balanced student, the students should gain a high awareness towards their surrounding. For instance, the student that studies Science should concern on the elements of the nature in making their hypothesis by using The Level of Environmental awareness among Students to Fulfill the aspiration of National Philosophy of Education the appropriate approach. Since most of the education concept share the same objective, it can be said that an awareness towards environmental is capable to fulfill the aspiration of National Philosophy of Education.

2.2.2 Environmental Values

Furthermore, the aspect of axiology focuses towards the moral of students. Thus, consistent with the effort to produce the balanced individual from the aspect of intellectual, physical, emotional and spiritual, the awareness towards environment should be implemented among the students. It is because,

from the aspect of axiology the theory of value is closely related with the element of belief and faith.

As the branch of axiology is divided in to two factors which are moral and esthetic, thus, the awareness towards environment should fulfill both aspects. In producing the ethical students, the students should obey the rule of society. If the rule concern the awareness towards environment, the students will directly concern the environment and will produce the society that will aware towards their surrounding. In addition, from the aspect of esthetic the students will reinforce their appreciation towards the beauty of nature and this will encourage them towards environmental awareness.

Furthermore, from the context of The National Philosophy of Education, the aspect of axiology plays the important role to produce the moralistic and responsible students towards their surroundings.

Hence, the level of environmental awareness among students is very important in fulfilling the aspiration of National Philosophy of Education. It is because, the good and healthy environment is able to encourage and develop students' mind towards the learning process. However, most of the students still do not realize the fact that the surrounding plays an important role within their daily life.

Thus, the aspect of consciousness along with the knowledge, understanding, the change of attitude and physical participation are very important for the students in developing their awareness towards the environmental aspect, and directly apply the values within their life.

2.2.3 Environmental Knowledge

From the aspect of philosophy reflectively, students are getting more opportunity to view the importance of environment for getting knowledge. It is

because, from the aspect of reflectively thought, the individual needs to examine the reality of emergence of the creator, the concept of knowledge and values with the deeply thinking. Thus, students need to be taught to think the existence of nature and its significance and implication within the human life, as the description of nature cannot be defined solely from the physically view. Since the students understand the concept of nature, they will realize the essential of harmonious environment.

Moreover, they will also encourage by the responsibility to analyze the cause and advantage of healthy environment. It is because, through the reflectively approach, students are taught to find the answer based on concept of cause and effect. Hence, the student that gains the awareness regarding their surrounding and environment, is more concern about the cause of environmental problem. Besides, students are more inclined to consider and analyze the implication of their behavior towards environment.

Besides, from the view of western education philosophy which is idealism, the element of moral is defined as universal and general concept and exists within the spiritual and mental. Thus, to fulfill the aspect of moral, environment is very important in producing the balanced individual from the aspect of spiritual and emotion. This is because students need to be revealed with the importance of cleanliness and the beauty of nature.

2.3 Approach of Educational Measures to Overcome Environmental Problem

Undoubtedly, the process of environmental education is complicated and should be reviewed deeply at the affective, cognitive, behavioral and meta cognitive levels (Sanera, 1998). In the same way, Jaus (1982) found that there is a positive correlation between environmental education instruction and favourable attitudes towards environment. Then, Worsley and Skrzypiec (1998)

examined the environmental attitudes of senior secondary school students in South Australia and the results were analysed with respect to students', locality, gender and socioeconomic status. Male students having lower socioeconomic status are pessimistic but supportive to environmental development and scientific solutions than females.

Since the solution for the environmental problems depends on the improvement of students' attitudes, school plays an integral role. The educators have to seek new approaches and methodologies for students to make them understand that the preservation of nature and efficient use of resources are vital to prevent environmental problems. Besides, many people believe that environmental education is one of the most important factors for preventing environmental problems (Özden, M., 2008). According to Abd. Rahman Aroff and Zakaria Kasa (1987), students thinking process depends on the concept of psychology such as the emotion, observation, learning, as well as the aspect of consolidation. Their observation towards their surrounding will develop the empirical knowledge, which is from the experience and application of sense. Hence, the role of educators is very important to encourage the good behaviour and right attitude of the students , along with the well and healthy environment (Sharifah Alawiyah Alsagoff, 1992).

Among the endeavour that has been carried out in implementing the environmental education among the students is of theoretical model. Hungerford and Volk (1990) in Palmer (1998) has identified the critical components which is needed to be implemented within the educational programme in order to change the students' attitude towards the environment. These components have been shown through the theoretical model which discusses the relation between knowledge and attitude. According to this theory, the knowledge regarding the environment and the skill of action are very important for an individual in changing his attitude. Theoretically, when the

knowledge regarding environment is increased, the positive attitude towards environment is indirectly expanded.

Moreover, by viewing from the context of education, the actual knowledge is not only focusing towards the fact, but also consider on the perception, observation, experience, as well as the reason. All of these elements come from the interaction process between human and the surrounding. If the environment is healthy and safe, the society will live within the harmonious and pleasant surroundings.

Thus, the significance of the concept of environmental awareness has been implemented since the primary school. It is because, the sensitivity towards the balance between human and environment is able to produce the balance of ability to think, as well as the physical and spiritual development. Thus, through the objective of Primary School Curriculum, students are able to recognize and appreciate this balance, and generate the concerned society towards the well and harmonious environment. This value is also practiced within the activity of co curriculum and this is an addition to the lesson in classroom. Hence, it is able to increase the level of environmental awareness among the students in fulfilling the aspiration of National Philosophy of Education (NPE).

This involvement of the students physically and spiritually towards the environmental protection and conservation develops the holistic individuals and the solidarity of this country (Aminuddin Hassan, Hafizan Juahir and Nur Syuhada Jamaludin).

On the other hand, it is widely known that the main characteristic of National Philosophy of Education is holistic and it is an integrated approach. This universal knowledge is taught by the educator and learned by the students (Chong, 2008). The objective of National Philosophy of Education is to produce such individual who is intellectually, spiritually, emotionally, and physically

balanced, as well as able to contribute towards the harmony and betterment of family, society and nation. It should correlate to the individual who has a balanced deliberation and able to contribute towards the stability of environment. Because the tranquility of environment, that include the stability of the ecosystem, contributes towards the healthy society with values and also produce the generation which is able to increase the productivity of the nation. Therefore, as school and the educators have become the societal agents towards students, the educators should present the good attitude in shaping element of environmental awareness among the students. The educators should develop holistic appreciation towards moral oriented subject through the teaching and learning process because they are the role model to the students. For instance, the aspects of environment should be applied within the process of teaching and learning, so that, the students will realize their responsibility to care the environment.

In addition, the application of teaching media by teachers should include the elements of environment. Students should be provided with the knowledge of environment at their childhood . As the belief of Confucianism, the National Philosophy of Education also aspires to produce the competent and moral individual (Choong Lean Keow, 2008). Thus, it is needed to focus on the implementation of environmental awareness in order to produce the generation that has praise-worthy personality and appreciation of creation of God (Yahya Don, 2005).

However, the element of awareness is not sufficient without knowledge, understanding, the change of attitude and physical participation. According to Abdul Fatah Hassan (2001), no matter how much knowledge has been gathered by someone, it is still can not be assumed as perfect since he / she applies the knowledge in his life to differentiate between the right and wrong.

Moreover, he believes that an appreciation is an important concept within man's life, because the concept without the sense of gratitude and appreciation is worthless and the sense of gratitude without concept is blind. For instance, by looking at the context of environmental issues, there are many individuals who gain knowledge and awareness regarding environment, but still show irresponsible attitude towards their surrounding. They fail to interpret the environmental awareness as mutual commitment (Starke, 1990).

Moreover, according to Thapa (1999) there are only a limited students who understand the relation between environmental attitudes and environmentally responsible behaviours . Due to the intensive environmental awareness promoted by the environmentalists, it is critical to observe if the leaders of tomorrow which means students uphold positive environmental attitudes and practices of the environmentally responsible behaviors. Hence, it can be said that the level of students' awareness towards environment and the values of humanism within their self are still low.

Concerning this issue, each individual especially student should have an awareness and responsibility towards environment in them. As stated by the philosophy of metaphysic, the connection between human and nature with the creator is an abstract elements, which can not be discover without examine and believe it. Thus, we need to recognize and care for this universe and preserve the harmonious relation with this nature. Besides, the appreciation towards the gift of God needs a responsibility and realization from every human being. Furthermore, apart from fulfill the aspiration of National Philosophy of Education, the student themselves are able to improve their weakness from the aspects of physical, spiritual, emotion, as well as intellectual.

Every creation of God, have their own significance and function. Environment is the habitat for all living things, including human, animal as well

as plant. It is very important to know and appreciate the existence of this nature, and realize its existence which is closely related to human's life.

On the other hand, human's activity is an act or manner that is based on emotion and his own nature. The emotion and the nature emerge differently according to his education and economical, social and spiritual aspect. Therefore education is very important in shaping the moral values and consciousness towards their surroundings. Thus, the awareness towards the protection and conservation should be developed within each human self, so that they can prevent themselves. Besides, they will make an effort to protect and conserve this nature once he realizes his responsibility towards his surrounding.

Within the context of students, their awareness regarding the importance of environment is able to protect this earth from the entire pollution. The environmental awareness among students since they were at school can be realized through the implementation of the main objective of National Philosophy of Education (NPE) within the teaching and learning process i.e. to produce an individual who is intellectually, physically, emotionally and spiritually balanced. The whole society, especially the students should realize that the stability of the environment is the main element within human's life. Each of them should know and believe that the concern towards the environment will bring harmony in human's life, society and the nation itself that parallel with the aim of National Philosophy of Education, which is to experience the nation's stability. Besides, the appreciation there should be a responsibility and realization towards the gift of the god in every human being.

2.4 Meaning and Nature of Consciousness through Environmental Education

As defined in the dictionary "consciousness is awareness or person's

conscious thoughts and feelings as a whole". Consciousness means the sum all experiences that are known to a person at a given time.

The present study is concerned about level or consciousness regarding ecology as well as biodiversity. The researcher, here tried to investigate how much the different groups of people, having different levels of education are conscious about the necessity of conservation of biodiversity.

2.5 Environmental Awareness and Biodiversity

Approximately 1.4 million species of plants, animals and micro organisms have been identified so far. The actual number is anticipated to be over 100 millions. But owing to various reasons there is constant loss of biodiversity. For years the progressive loss of biodiversity largely escaped the attention of planners and ecologists, chiefly because the visible effects were not obvious or immediate. But recently 'ozone hole',` green house effect',` acid rain' entered into the public consciousness.

There is a thin girdle of ozone gas in the stratosphere round the earth. It protects the life on earth from hazardous effects of sun's ultra violet rays. These rays can cause skin cancer in human beings and suppress the body immune system. Recently it has been discovered that a big hole has developed in this layer over the South pole. It is caused by various gases evolving out of the industries of the earth. The gas C. F. C which is used in refrigerator and computer industries is the main culprit in this respect. This hole is gradually increasing in size. As a result ultraviolet rays coming down in greater quantity, causing skin cancer in people on the southern part of the earth (including South India) and harming the animals and plants in various ways.

Greenhouse effect is another great ecological problem, facing by us. The relative amount of carbon dioxide has been gradually and constantly increasing in the atmosphere, since the industrial revolution. The pace has been accelerated

since scientific and technological revolution. Large scale destruction of tropical forests causes the increase of carbon dioxide and other harmful gases in the atmosphere, which in turn is gradually increasing the temperature of atmosphere. As a result the sea water is warming and its level is increasing and other natural atmospheric disturbances are occurring. If the temperature of the atmosphere goes above certain level entire life will be totally extinct from the surface of the earth.

It is therefore obvious that mass consciousness must be raised to higher level in order to preserve environmental awareness. Biodiversity is a very recent topic and scientists have only a very rudimentary knowledge of biodiversity. Issue of research on Biodiversity and conservation figured prominently in the United Nations Conference on Environment and Development (1992) at Rio-de-Janeiro in Brazil.

Some studies regarding conservation of Environment Awareness and such other related problems are given below –

1. Environmental Awareness & Education : "An Approach to Sustainable Development" was presented by Ann Danaiya Usher in April 1992. It will be published by OECD in Paris. The paper describes an alternative approach to environmental education based primarily on the experiences of the Project for Ecological Recovery within the Environmental movement.

2. The International Union of Biological Sciences, the Scientific Committee on Problems of the Environment (SCOPE) and the Man and the Biosphere programme of the United Nations Educational, Scientific and Cultural Organization (UNESCO) recently joined forces to develop a scientific programme to study the role of biodiversity in the function of eco-systems. One of the goals of this programme is to develop scientific hypotheses regarding biodiversity that has been discussed at three meetings – a

workshop at Harvard University at the end of June'92, an international symposium sponsored by SCOPE held in Bayrenth, Germany, in October, 1992 and later in October, 1992 an international symposium on biodiversity sponsored by UNESCO and the United Nations Environment Programme which took place in Nalchik USSR.

3. Jeffery A. MeNeely's study – Economic and Biological Diversity : Developing and Using Economic Incentives to conserve Biological resources, published by – International Union for conservation Nature and Natural Resources, in Gland Switzerland in 1988.

4. Jay D. Hair's paper : "The Economics of conserving Wet lands : A Widening Circle "presented at World conservation Union General Assembly, Costa Rica, in February, 1988.

5. E. O Wilson's paper : "Success and Dominance in Ecosystem : The case of the Social Insects published by Ecology Institute, Oldendrof-Luhe, Germany, 1990.

6. Stephen H. Sehneider's Study : "The Greenhouse Effect : Science and Policy" Published in 1989.

7. Norman Myers's paper : "Threatened Biotas : Hot spots in Tropical Forests" published in 1988.

8. Russell. A. Miltermeir's Study : "Primate Diversity and the Tropical Forest : Case Studies from Brazil and Madagascar and the Importance of Mega Diversity Countries" published in 1988.

9. Michae A. Huston's research study include the use of computer simulation models to address issues in population, community and ecosystem ecology, with field work in tropical and temperate forests, coral reefs and temperate grasslands. His paper was published in 1922.

10. Dr. Kalyan Chakraborty carried out a study of inter dependant relationship of man, plant and animal. The field work was done in three parts of West Bengal. The study not only included forest resources but also faunal diversity of the Sundarban's littoral and swamp forests. He was awarded a Ph. D for this ecological research in 1988

A fundamental measure of biological richness and ecosystem health, is a concept through Environmental awareness, and its impacts, is the subject of this Report development of an Action Plan. It is important to note that climate change impacts on biodiversity is addressed in a separate background report, and is not addressed directly in these pages.

Biodiversity is not only a challenge to maintain, it is a challenging concept to define.

First coined in 1980, we have been in almost daily contact with the word for over twenty five years. Yet it remains a vague concept for the average person, and even among scientists, there are widely differing interpretations. The number of different ecosystems within a given area. Next is the number of species.

Gayton, (2007) conducted a study "Major Impacts to Biodiversity (Excluding Climate Change)" within a specific ecosystem or site (this level is also known as alpha diversity), and the lowest level of biodiversity is the amount of genetic diversity within a population of a single species. These three categories or levels are somewhat arbitrary, we could just as easily come up with two or twelve but they are useful for describing and managing

biodiversity. The individual levels of biodiversity are like Russian dolls : one level is nested within the next one above it, and so on.

The term biodiversity itself is not spatially specific; it can be used to describe the biological characteristics of a pond, or of a continent. Biodiversity can also be described not by genes, species and ecosystems, but on the basis of functional types. For example, moose and caribou are separate species, but their ecological function – large herbivores – is the same. Functional biodiversity is a less common approach, but has the advantage of focusing on ecological processes— herbivory, nitrogen fixation, predation, etc. rather than cataloguing genes, species and ecosystems. However, this report will confine itself to the conventional approach.

Although the results are often visually obvious, there is a paucity of quantitative data linking various environmental impacts to permanent or even temporary decreases in biodiversity. Loss of habitat through land conversion presents a clear, quantifiable case, but linking less dramatic impacts – for example connecting pesticide use or invasive plants to biodiversity losses is much more challenging.

One crude method of monitoring biodiversity loss is to track fluctuations in the number of species on the federal and provincial species at risk lists. However, species additions to the various lists often occur as a result of recent monitoring or research rather than as a result of actual declines in population size or range. So it is not an entirely accurate barometer.

2.6 Impacts on Environmental Awareness

In review of the literature and discussions with Environmental Awareness, it became clear that cataloguing the impacts on Environmental Awareness in several different ways. The basis for this difference lies in the concepts of "proximate cause" the specific biophysical event that causes the loss

of genetic, species or ecosystem diversity "intermediate cause" (the human act that triggers the biophysical event and "ultimate cause" the underlying economic, social or policy reason motivating the human act). For example, the proximate cause for the decline in a particular fish population might be excessive siltation of gravel beds where they customarily spawn.

The intermediate cause of the decline could be a hydroelectric dam upstream of the spawning bed, which has reduced the volume and velocity of the spring freshet that normally flushes silt out of the gravel. The ultimate cause, in this same instance, is the human demand for electrical energy. Much of our current attention is focused on proximate and intermediate causes.

Impacts on biodiversity are also a matter of degree. Stepping on an ant is theoretically an impact on biodiversity, but we deem it to be insignificant. At the other end of the scale, there is general agreement that we have severely damaged the life of the river with an excessive number of dams on its main stem and tributaries. Somewhere between these two extremes lies the notion of sustainability—that ecosystems and biological processes are able to tolerate and absorb certain thresholds of human activity, but above those thresholds, biodiversity inevitably declines. And finally, social priority and level of knowledge affects our understanding of biodiversity. As little as two decades ago, this rapid change is symptomatic of a larger shift in social attitude toward nature, a shift that proceeds apace. If the trend continues, one may assume that previously ignored aspects of our biodiversity will gain in importance.

For instance, insects are a functional part of our biota, yet except for a handful of forest insect pests, we commonly ignore that component when describing and managing ecosystems, mainly because we know so little about them. The cataloguing of British Columbia's insects including those that are rare and even new to science proceeds very slowly since only a handful of entomologists are available to work on it. However, it is quite possible that in a

few decades insects and other invertebrates will play a major role in our biodiversity measures.

In the section that follows, an attempt to identify and document the major impacts on biodiversity in British Columbia (excluding climate change). An initial attempt was made to develop quantitative criteria for selecting "major" impacts, but the impacts themselves are so diverse and multifaceted, that they almost defy quantitative comparison. In the final analysis, the criteria used for selecting major impacts was expert opinion, research, and my own judgment.

There are positive human impacts on biodiversity, as well as negative ones. The creation of protected areas, for instance, can slow the loss of biodiversity. Although positive impacts are mentioned tangentially in the various

Discussion sections of each impact, this report confines itself to negative impacts. The impacts selected for the report are generally intermediate and ultimate causes, as described above. "Habitat loss" is obviously a major source of biodiversity impact, but avoided this catch-all term, opting instead to identify the major drivers of habitat loss. Proximate causes tend to be amenable to technical solutions; ultimate causes generally require major economic, political and / or cultural solutions. At the conclusion of the report, speculation on ultimate causes and their potential solutions were made.

A good example of this is the Okanagan River Restoration Initiative (ORRI) which has initiated the re-meandering process on a short section of the Okanagan River just north of Oliver. Many road and railroad culverts around the province create barriers to fish movement and spawning. As stream water enters a culvert, its velocity increases, exceeding the "burst speed" of fish attempting to swim upstream. A simple retrofit is possible in many cases, by adding small baffles to the bottom surface of the culvert or spillway, to create pockets of slack water where ascending fish can rest.

2.7 Environmental Education

1. Research on the impact and effectiveness of Environmental Awareness including different pedagogical methods, use of different media and innovative technologies on the values of society, on the level of awareness on biodiversity related problems and on perceptions.
2. Research on the use of biodiversity as an interdisciplinary educational resource.
3. Research on assessment methods to evaluate and measure the effect and effectiveness of biodiversity education.
4. Research on the active participation of schools in gathering and delivering biodiversity related data and information in cooperation with the biodiversity research community.
5. Promote the involvement of the educational community in inter- and transdisciplinary biodiversity research.
6. Improve access to biodiversity related data and information, ensuring that data can be used in education; using and further developing existing facilities, including the CBD Clearing House.

2.8 Understanding Environment

1. Further increase the impact of scientific research by fostering cooperation between scientists and formal, non-formal and informal education institutions.
2. Support development of curricula, pedagogical methods and innovative tools to facilitate education on biodiversity and biodiversity research.
3. Establish participatory mechanisms for effective education and active involvement of multiple biodiversity stakeholders to ensure sustainable use of biodiversity.
4. Strengthen educator training concerning biodiversity.

5. Promote the involvement of families in biodiversity education.
6. Promote the involvement of pupils, students and their families in biodiversity monitoring, management and conservation, including urban areas, as a pedagogical strategy.
7. Develop and promote education related aspects within a concept of a "UN Decade of biodiversity".

These research priorities were derived from the following considerations :

- Biodiversity is an integral part of sustainable development (CBD).
- The UN has declared a Decade of Education for Sustainable Development for the years 2005–2014.
- The Council of the European Union emphasizes that education is a prerequisite for promoting the behavioral changes and providing all citizens with the key competences needed to achieve sustainable development.
- The EU countries have decided to implement the UNECE Strategy for Education for Sustainable Development adopted in Vilnius in 2005.

2.9 Environment in Education and Learning

Provision of food, fuel and fiber, shelter and building materials, purification of air and water, detoxification of wastes, moderation of floods and droughts, stabilization of climate, control of pests and diseases, as well as cultural and aesthetic benefits: these are just some of the many services that biodiversity, the diversity of genes, species, and ecosystems, provides to all forms of life on Earth, including humans. Yet, for most people, biodiversity remains the invisible basis for human existence. Increasingly settled in urban settings, the global community is largely unaware of the extent to which their economic, social and cultural well-being is founded on strong, resilient ecosystems, landscapes and seascapes which are themselves buttressed by a rich diversity of genes and species. For those communities that directly rely on

biodiversity for their livelihoods, short-term considerations may obscure the impacts of their practices on the capacity of ecosystems to provide essential services on the long-term. In both cases, this lack of awareness leads to practices that overexploit natural resources and harm biodiversity. Raising awareness of the critical role that biodiversity plays in ensuring environmental sustainability, economic prosperity and social and cultural well-being will contribute to the enhancement and/or the development of sustainable development actions, including ways of organizing thoughtful consumption and production behaviors that are sustainable from local to global levels. People are willing to take the steps to engage in a life long learning process that will allow them to live in a way that will ensure a sustainable future including saving biodiversity. ESD can provide the values, competencies, knowledge and skills for citizens to realize this process.

2.10 Environment in Learning Contexts

Formal education systems around the world are continually asked to include a range of social issues in their curricula. Therefore the goal is to infuse key biodiversity messages into the pursuit of a more sustainable future and engage formal education on this basis. Because the conservation and sustainable use of biological diversity is impacted by the activities of many government bodies, the broader context of government policies and commitments in any given country need to be clearly identified and effectively communicated. Non formal : People are always learning. They learn from observing others; they learn from their parents; they learn from media; they learn in the workplace; they learn through their own life experiences. Non formal learning providers support this "everyday" learning by offering structured and free-choice opportunities for people to explore ideas, to satisfy curiosity, to gain information and skills, and to improve their quality of life. The goal is to

identify ways that biodiversity is being explored by these communities and encourage sharing of experiences.

On the basis of the above, participants share their experiences in mainstreaming biodiversity concepts and principles into formal and non formal contexts of learning. The focus will be on ways to engage different actors including: educational ministries; teachers and students; NGOs, the media and the private sector.

2.11 Environmental Awareness for a Sustainable Future

Taking the principles elaborated in the first two themes as a point of departure, workshop participants will create action plans for including biodiversity into ESD for specific themes : cultural values if biodiversity (spiritual, aesthetic, inspirational, recreational and educational values); diversity of cultural practices impacting biodiversity and vice versa (use of local food systems and traditional medicine, rituals associated with natural cycles, conservation of sacred sites, ecotourism); diversity of knowledge systems (including local and indigenous traditional knowledge systems).

2.12 Ecosystem for Sustainability

The drivers of biodiversity loss: habitat destruction and fragmentation; pollution; invasive alien species; climate change; over-exploitation of resources, are strongly related to unsustainable patterns of consumption by individuals and groups

2.13 Education Leadership and Environment

Management of biodiversity and sustainable production requires a particular set of skills. For example, a body of trained taxonomists is required to

understand ecosystem functioning. Resource managers need to be trained in the relationship between the technical and social aspects of biodiversity conservation.

2.14 Environment and Cultural Diversity

The rich diversity of life on Earth encompasses not only biological, but also cultural diversity, including variety of practices, traditions, languages, artistic expressions, and belief, value and knowledge systems, which are rooted in and depend on specific aspects of biodiversity. Recognizing that biological diversity is intimately linked to cultural diversity and that together these two forms of diversity hold the key to sustainable development, this group will explore the ways of linking the issues of cultural and biological diversity in the context of ESD and in particular by focusing on integration of the following aspects in education and learning processes.

2.15 Variation in Environmental Awareness between Secondary and Senior Secondary School Students

Mean (M) score of environmental awareness of secondary school students was 88.62 and that of senior secondary school students was 87.58. Standard Deviation (SD) score of secondary school students was 11.90 and that of senior secondary students was 11.95. Critical Ratio score (t-value) was 0.08 which was significant at 0.05 level of significance. Therefore, the hypothesis no. 1 that there might be no significant difference in environmental awareness of secondary and senior secondary school students was accepted. As it is concluded that both secondary and senior secondary students have almost equal environmental awareness shown by non significant value (t = 0.08). The main reason for non-significant differences in environmental awareness between secondary and senior secondary students is that these days environmental

education is being taught as a compulsory subject in all schools throughout the India, after an order by the honourable Supreme Court was passed in this regard in the year 2005. The main aim of this order was to educate the people of India about the various environmental issues affecting our planet earth. As the students at both the levels have studied environmental education in school so no significant difference in environmental awareness exists between them.

2.16 Variation in Environmental Awareness between Students of Private and Government Schools

Mean (M) environmental awareness score of students of private schools was 96.22 and that of students of Government schools was 78.78. Standard Deviation (SD) scores of students of private schools was 9.57 and that of Government school students was 8.303. t-value was 14.53. Therefore, the hypothesis that there might be significant differences in environmental awareness of students of private schools and government schools was retained at 0.01 level. These findings reveal that students of private schools have more environmental awareness than government school students. The main reason for higher environmental awareness among students of private schools (96.22) than government school students (78.78) may be the family background and educational qualification of parents. Parents of students studying in private schools are graduates and are having well to do and affluent family background. Such parents are mainly concerned with inculcating environmental awareness in their children as they are aware of the dangers and consequences of environmental degradation at global level. On the other hand, students staying in Government schools come from poor families and have less educated or illiterate parents. Their main priority is to fulfill the needs of their family members. They are not aware of environmental issues so they can't pass on these awareness measures to their children so the students of government

schools do not get the learning environment in their homes because of which they score less than students of private schools.

2.17 Variation in Environmental Awareness between Students of Semi-Government and Government Schools

Mean (M) environment awareness score for semi-government school students was 87.45 and that for Government School students was 78.78. Standard Deviation (SD) scores for Semi-government School students was 9.036 and for government school students was 8.303. t-value was 7.41. Therefore, the hypothesis that there might be significant difference in environmental awareness between students of semi-government and government schools was retained at 0.01 level. These findings reveal that students of semi-government schools (87.45) have more environmental awareness than government school (78.78) students. The main reason for this difference is that the students in semi-government school have better educational environment than those in government schools. The teachers in semi-government schools make more efforts to provide better education and environmental awareness to their students than the teachers of the government schools who make little efforts in this regard.

2.18 Variation in Environmental Awareness between Students Studying in Punjabi and English Medium Schools

Mean score of environmental awareness of Punjabi medium students was 78.78 whereas the mean score of English medium students was 96.92. Standard Deviation of Punjabi medium students was 8.303 whereas the standard deviation of English medium students was 9.576. The t-value comes out to be 14.53. Therefore, the hypothesis that there might be significant differences in environmental awareness of students studying in Punjabi and English medium is

retained at 0.01 level. The main reason of this difference is that most of English medium schools and students are in Urban areas and Punjabi medium schools are in rural areas. Students studying in English medium have more environmental awareness because most of the literature on environmental issues is available in English medium. On the other hand Punjabi medium students have limited access to world environmental problems and environmental awareness because they never leave their homes to know about the rest of the world and very limited literature is available in Punjabi medium related to environmental awareness.

2.19 Gender-wise Variation in Environmental Awareness

Mean (M) environmental awareness score of boys was 87.89 and that of girls was 88.43.Standard Deviation (SD) score for boys was 12.25 and that for girls was 10.19 and the t-value was 0.428. Therefore, the hypothesis that no significance difference exist between male and female school students environmental awareness was retained at 0.05 level. It is concluded that gender is not a factor for affecting environmental awareness of school students. The main reason for almost equal environmental awareness of boys (M = 87.89) and girls (M = 88.43) is that they are studying together in the same teaching learning environment in the schools.

2.20 Variation in Environmental Awareness in Students of Rural and Urban Areas

Mean (M) environmental awareness score of students in rural areas was 80.17 and that in urban areas was 95.43. Standard Deviation (SD) score of school students in rural areas was 8.14 and that in urban areas was 9.17. t-value was 16.23. Therefore, the hypothesis that significant differences exist in environmental awareness of school students of rural and urban areas is retained

at 0.01 level. Therefore, it is concluded that environmental awareness of urban areas school students is much higher than that of rural areas. The main reason for such differences is that school students in urban areas have more facilities in terms of education, entertainment, competitions etc. than students in rural areas. Urban areas school students have an easy access to internet which provides them information about various factors which are responsible for degrading the environment in different parts of the World. Their parents are educated and they got good learning environments at home, which increase their knowledge concerning environment. Various programmes like Van Mahautsav, World Environment Day, No Tobacco Day etc. helps in creating awareness about environment among school students. Whereas, rural school students do not have such facilities. Their home environments are also where they do not get any awareness about the environment. They are not aware about the various threats to the environment. They mostly study in government schools where very little efforts are made to provide them environmental awareness.

All these findings urges us and the government to make efforts to provide the necessary infrastructures like internet facilities, library facilities for accessing environment related books for the students studying in different schools run by the different types of school managements. Governments should be aware also of rural areas which must not be deprived of these facilities.

CHAPTER – III

ENVIRONMENTAL AWARENESS : SOME ASPECTS AND INFLUENCES

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3.1 Environmental Awareness : Knowledge and Growing Attitude for Sustainable Development

Environmental Education (EE) gained and geared up an international recognition in 1972 with the UN Conference on the Human Environment, in Stockholm, Sweden, which called upon Environmental Education as the means to address environmental issues worldwide. The world's first Intergovernmental Conference on Environmental Education, Tbilisi, Georgia (USSR), organized by UNESCO in partnership with UNEP in 1977, highlighted the important role of EE in the preservation and improvement of the world's environment, as well as in the sound and balanced development of the world's communities. Ten years later, in 1987, UNESCO and UNEP organized an International Congress in Moscow, USSR in order to determine an international strategy for 'action in EE and training' for the 1990s.

This was followed by a third conference held at Thessaloniki, Greece in 1997 which highlighted the role of education and public awareness for achieving sustainability.

In 1992, in order to assess 20 years of work in the field of environment following the 1972 Stockholm conference, the UN organised a Conference on Environment and Development (UNCED), also called the Earth Summit at Rio de Janeiro, Brazil. The outcomes of this conference were crystallized in Agenda 21 in which Chapter 36, entitled 'Promoting Education, Public Awareness and Training', established the basis for action in EE for Sustainable Development for the years to come.

Ten years later, in September 2002, the UN organised the World Summit

on Sustainable Development (WSSD) in Johannesburg, South Africa to assess progress made in this direction on a worldwide basis.

The 1990s saw several other conferences and meetings which focused on Sustainable Development and the role of education in the process. At the end of the last millennium, United Nations adopted the Millennium Development Goals in an effort to consolidate the partnerships and commitments made at these events

3.2 Human Values in Tribal Areas uploading Environmental Awareness

Today our civilization have been facing a critical environmental imbalance, so that unless some urgent steps are taken urgently, the existence of the earth will be under stake unless human values are there. There are various aspects of the ecological crisis, for example, rapid destruction of forests, depletion of oxygen and increase of carbon dioxide in the atmosphere, thereby warming up the continents and oceans, creation of holes in the protective layer of ozone in the stratosphere etc. Of all these ecological problems one of the most important is destruction of Biodiversity and for Environmental Awareness.

Fig. 2 : Rural Environmental Balance at West Midnapur District in West Bengal in a Tribal Area

Most of the developed countries are responsible for such kind of imbalances by using nature according to their purpose. Not surprising this, for the conservation and wise management of biodiversity is likely to be critical to the very survival of humanity. control over as a basic survival resources through Environmental Awareness automatically translates into control over people's lives and consequently over communities and nations.

Fig. 3 : A natural set up of rural Bengal along with their values

3.3 Biodiversity for Protecting Environment

Existence of various forms of life on the earth both in plant and animal kingdom. Environmental Awareness is the result of evolution over the long geological ages with their conscious effort . All the living organism, including man, are inter-related and interdependent. They have each evolve out of another in certain conditions with certain structures.

Biological diversity possibly at an all time high. Biological resources were freely available for exploitation to support development. But, in the late 20th century, people began to realise, that biological resources have limits. That limits are being exceeded and that over exploitation results in substantial loss of biological diversity and which requires Environmental Awareness.

But unfortunately, excepts scientists and naturalists, most of the common people and even elite class of people of our country are avoiding about this problem.

Though environment has become a component in education and awareness programme and concept and practices of conservation of Environmental are included into education.

It is unfortunate that as we have entered a new century, much of the success that we have achieved but not all the time we think about the sustainable development of the universe. Future generations have the right to breathe healthy air, drink pure water and have an eco-friendly environment to dwell in, we have to prevent ecological disasters coupled with restoring the wasted natural resources.

Environmental Education is an all-inclusive term to describe the total variation that occurs among living organisms of our planet, and it includes three main components –

1. the diversity of species that occurs in the world, from the familiar plants and animals to the less conspicuous fungi, bacteria, protozoans and viruses.
2. the genetic variation that occurs within individual species that causes them to vary in their appearance (phenotype) or their ecological responses and allows them to react to the process of evolutionary selection and
3. the diversity of habitats or ecological complexes in which species occur together whether they be such well-known ones as rainforest, tundra and

coral reefs, or the complex of bacteria that inhabit the human body or a gram of soil.

Benchmarks of Environmental Awareness suggest that students in this group should know the following.

- One of the most general distinctions among organisms is between plants, which use sunlight to make their own food, and animals, which consume energy-rich food. Some kinds of organisms, many of them microscopic, cannot be neatly classified as either plants or animals.

- Animals and plants have a great variety of body plans and internal structures that contribute to their being able to make or find food and reproduce.

- Similarities among organisms are found in internal anatomical features, which can be used to infer the degree of relatedness among organisms. In classifying organisms, biologists consider details of internal and external structures to be more important than behavior or general appearance.

- For sexually reproducing organisms, a species comprises all organisms that can mate with another to produce fertile offspring.

- All organisms, including the human species, are part of and depend on two main interconnected global food webs. One includes microscopic ocean plants, the animals that feed on them, and finally the animals that feed on those animals. The other web includes land plants, the animals that feed on them, and so forth. The cycles continue indefinitely because organisms decompose after death to return food material to the environment.

Fig. 4 : Involvement is the Key Factor for Environmental Awareness

For students at the secondary level, curricular objectives lead to Involvement and understanding diversity within and among species by looking at "same and different" features at a molecular level. Students would learn the following :

The variation of organisms within a species increases the likelihood that at least some members of the species will survive under changed environmental conditions, and a great diversity of species increases the chance that at least some living things will survive in the face of large changes in the environment.

Understanding built up over this period of study would lead students to comprehend the diversity of ecosystems, diversity of species, and the genetic diversity within species.

While benchmarks sets out a recommended sequence of learning goals to help students come to an understanding of Environmental Awareness as a complex idea, it is not clear that most students have access to the education, ideas, concepts, and learning experiences needed to achieve such

understandings. Therefore it would be necessary to explore what students are taught or expected to learn over time during their schooling.

3.4 Environmental Education and School Curriculum

Formal education in science is an important contributor to students' fundamental understandings about science. While self-directed study – books, articles, the Internet, museum visits, and field experiences augment science learning for many students, the quality of the curriculum, textbooks, and other instructional materials, the preparation of teachers, the school-mediated experiences provided to students both inside and outside of the classroom all interact to shape what students take away from school science. Understandings of biodiversity would be based on accumulated experiences and knowledge. These would include the early school focus on "natural study" and development of an "intuitive" understanding of biological diversity and the relationships among living organisms (National Research Council, 1990). Students' out-of-school experiences, where such are available, would reinforce school learning. The curriculum focus shifts in lower and upper secondary levels (grades 6 – 12) to more formal, taxonomic instruction.

This pattern of topic coverage for life sciences concepts is present in the curriculum of other countries around the world and was prevalent among the majority of the 50 educational systems of countries that participated in the Third Mathematics and Science Study (or TIMSS). Data were collected in 1993 and results presented in 1996.

The recommendations of different International organizations include calls for better informal education, promotion of environmentally sound leisure and tourism activities, programs to involve young people and children, as well as respect for and support of efforts to promote dissemination of traditional and socially learned knowledge through mechanisms based in local cultures.

Environmental education was called "nature study" when it got its start in the 1920s with Junior Audubon Clubs teaching children to appreciate nature. According to Karen Schmidt in a December 13, 1996 article in *Science*, the movement was transformed into conservation education in the 1930s when the Dust Bowl environmental tragedy led to incorporation of ideas into some schools about the management of natural resources.

Teaming with Life makes a strong recommendation that environmental education have a stronger base in science, using scientifically grounded curricula. Innovative programs such as GLOBE that depend on student-scientist partnerships and collection of real data may point the way to science education based around environmental and biodiversity concerns.

3.5 Learning in the Informal Education Sector

A wide range of informal education experiences are available to extend their knowledge about biodiversity. Biodiversity education takes place in the informal sector by reading books, visiting zoos, museum, and national parks, listening to lectures and watching television programs on the increasing number of science- and nature-based cable channels, or the increased coverage of science on the news or news magazines, visiting the World Wide Web, where an increasing number of excellent sites developed by universities, museums, federal agencies, and non-profit organizations provide high-quality information.

Fig. 5 : Biodiversity in the Rural Informal Sector

3.6 Non-profit Organization for Environmental Awareness

A number of organizations produce materials to support education about environmental and biodiversity issues. These include groups such as the World Wildlife Fund, the Sierra Club, and the Audubon Society. These groups develop a wide variety of public information and educational materials.

While most mainstream advocacy groups are conscious of the need to "get the science right" and to present balanced viewpoints concerns are sometimes expressed about school use of materials that emanate from an "advocacy position". Guidelines have been developed by NAAEE to assist educators to assessing the scientific accuracy of such materials.

Earthwatch :

Earthwatch Institute is an international nonprofit organization founded in 1971 that supports scientific field research worldwide. Volunteers participate in actual field research, assisting scientists in gathering data. Since its beginnings it has "mobilized 150 projects around the glob, resulting in the discovery of 2000 species, the establishment of 12 national parks, and the founding of eight

museums". The Earthwatch website lists active projects that volunteers can join in seven topical areas including Endangered Ecosystems and Biodiversity.

Public Awareness :

How much does the public understand about environmental issues in general and biodiversity in particular, and what are the attitudes toward these issues ? Surveys from a number of sources indicate that there is strong public interest in and support for issues related to the environment. The National Science Board's Science and Engineering Indicators (1998) suggested strong interest and "informedness" of the public around environment and health topics, especially when compared with other science and technology areas, and interest and support were stronger among women than men. The National Environmental Report card, an attitudinal and knowledge survey of American adults conducted by the National Environmental Education and Training Foundation and Roper Starch Worldwide, concluded that there was "an alarming lack of knowledge about some of our most critical environmental problems". With regard to biodiversity, however, 73% of adults surveyed correctly responded about the direct relationship between species loss and habitat destruction.

The 1996 Biodiversity Poll, conducted by the public opinion research firms Belden & Russonello and R/S/M and reported at the Summit, revealed the following about the environment and biodiversity :

- People care about the environment, but it isn't in the top tier of public concerns.
- Of environmental concerns, the public considers the most serious problems to be toxic waste, destruction of the rain forest, loss of places in nature, and air and water quality.
- Extinction is a concern, but it is not high on the list.

- People understand that nature is connected and interdependent, but most people do not recognize or use the word biodiversity. Only 2 in 10 said they had heard about the "loss of biological diversity".
- The public understands that species are declining and that human activity is largely responsible. But the public does not understand much about specific reasons or about the seriousness of the rate of loss.
- Public support for Environmental Awareness conservation is wide – 87%. But this support is shallow.
- Countervailing values can peel support away from Environmental Awareness and Protection. These include concerns about jobs, individual property rights, comfort and convenience, and preservation of "unattractive" species. However, 51% of Americans agrees that the world would suffer if such "unattractive species" (e.g. mosquitoes) are eliminated.

The gap may relate to the following :

- A general lack of attention to Environmental Awareness and its consequences by the media.
- The way that the public message about Environmental Awareness is conveyed.
- The biological understandings that members of the public bring to the discussion.

The program for majors involves students in a range of activities designed to get them to think like scientists. Environmental Awareness and human impacts on the environment are explicit foci of instruction, and in the late 1980s and 1990s the college program was "translated" into a middle grades life sciences project (HumBio). Environmental Awareness concepts and activities are explicitly included among the curriculum materials in the ecology theme.

Other countries that have evidence of strong interest in collegiate and university studies in Environmental Awareness include Canada and Australia. The United Nations University, Institute for Natural Resources in Africa (UNU / INRA) has a number of relevant programs in the following categories :

- Soil and water management : soil fertility restoration and maintenance.
- Conservation of biodiversity : Genetic improvement and increased utilization of Africa's indigenous food crops and useful plants.
- Conservation and management of mineral resources.

Education and training are key areas of interest to UNU / INRA. In cooperation with other agencies of the UN, the program develops curriculum and contributes to training in areas such as ecological economics, natural resource economics and environmental accounting, germplasm and biodiversity conservation, wildlife management, and taxonomy. Gender and Natural Resources is a major cross-cutting theme in the work of the institute.

3.7 Systematic Research and Training

A combination of school-based learning and out of school experiences combine to provide young people with knowledge of and attitudes about biodiversity that they then take into adulthood. For those who pursue higher education, college-level courses are available in some institutions that integrate biodiversity education into larger biological, environmental, or human impacts courses. Other adults must depend on the informal education sector, with experiences provided by a variety of different institutions and media. Biodiversity education may also, in some cultures, rely on community transmission of locally held knowledge of plants and animals of a region. Whatever the process for developing understanding, education and public awareness have been seen as crucial precursors to building support for biodiversity.

3.8 Biodiversity and Environmental Awareness

The convention on Biological Diversity articulates a case for nations of the world to come together to undertake activities to improve conservation of biological resources. As of June 1997 more than 170 nations had ratified the convention for promoting Environmental Awareness. In addition to cells for better management, more research, and study and international regional cooperation, there was also recognition of the role of education, public participation, public information, and the deviation of a cadre of professionals to support the goals of the convention.

A recent report to President's Committee of Advisors on Science and Technology (PCAST) makes recommendations to strengthen the understanding and management of biology resources (PCAST, 1998) with Life : Investigating in Science to understand Formal and informal education centered on biodiversity and ecosystems, for interactions between teachers or students and for continuing professional education.

How do students learn about biodiversity ? What specific concepts must they learn and what ideas must they acquire to support that understanding ? What class work, materials, curriculum, set of courses and experiences would provided an adequate background so that they come to an understanding of this concept.

The aggregate of all the processes by means of which a person develops abilities, attitudes, and other forms of behaviours or positive value in the society in which he lives for better environment :

1. The social process by which people are subjected to the influence of a selected and controlled environment;
2. so that they may attain social competence and optimum individual development;
3. ordinarily, a general term for the so-called "technical" or more specifically classified professional courses offered in higher institution for the

preparation of teachers and relating directly to educational psychology, philosophy, and history of education, curriculum, special and general methods, instruction, administration, supervision, etc; broadly, the total pattern of preparation, formal and informal, that results in the professional growth of teachers and

4. the art of making available to each generation the organized knowledge of the past.

3.9 Environment and Other Sub Systems

Environment is defined as a surrounding or conditions influencing development of growth. It can be understood as a system which includes all living and non-living things; i.e., air, water, soil, vegetation, flora, and fauna. Man in a slave of environment. The child may have all kinds of abilities but they cannot be developed fully without a proper environment. Environment starts influencing the child from the stage of embryo. This influence has been called "Social Heredity". The child when he / she comes to this world, finds surrounded by innumerable objects and circumstances which influence him/her. All these except the child form the environment. On the other hand there are two terms namely, ecology and ecosystem, which are to be acquainted with in this context.

Ecology

Ecology is the study of the total relations of the animal both to its organic environment including its friendly and inimical relations with those animals and plants with which it comes directly or indirectly in contact. In essence, ecology is the study of ecosystem.

Ecosystem

An ecosystem is a small segment of nature embracing the community of living things plus the physical environment. The basic and most important concept of an ecosystem is that everything is somehow related to everything else in nature. Major types of ecosystems are the seas, estuaries and seashores, fresh water system, deserts, tundra, grasslands and forests.

3.10 Man and Environmental Extremism

The environment which sustains life is in peril at present. Human actions are responsible for this. Rapid industrialization, further advancement in science and technology and the abuse of this advancement in an arbitrary way and the fast growth of urbanization have posed danger to man himself. Man's life, in terms of quality and sustainability, is dependent on the interrelationship among the natural environment, social environment and technological environment and the latter two being manmade. As proposed by the sociologist William Ogburn, a change in any one of the environments will lead to greater or lesser changes, as a result will have a tremendous impact of the very living of the man. The most threatening aspect is the uncertainty prevailing the fate of our future generations.

Generally, people are indifferent to their environment. Newton's third law states "every action has an equal and opposite reaction." This equally applies to man's relationship with nature as it relates to application of force on inanimate objects. While man sought domination over nature in five thousand years of recorded history, a has began to realize that his welfare and his very existence are deeply intertwined with the natural cycling system.

The uniqueness of man is his ability to subordinate nature and natural resources. So long as the requirements of his economics activities were small in relation to global stock of critical resources, he could count on improving his

welfare. But his economic activities have increased at an exponential rate during the past several decades with the results that the earths resource base and life support system have become vastly depleted. The principal manifestations of those impacts are on the global climate, the intricate web of forest, ecology and diversity of living beings and increased transparency of the earth atmospheric protective shield to harmful ultraviolet radiation. All these are directly and indirectly to man's economics activities and to each other. They all have serious implication for his future well-being.

The various issues that have come to the fore are air, water and land pollution, deforestation, wildlife depletion, acid rains, ozone depletion, desertification, global worming, loss of biodiversity, tropical rainforest, biosphere management, green-house affect and others such issues. Of these climate change and biological diversity are describe as the most urgent, requiring immediate attention. This is essentially because it is now well established the damage to environmental systems and natural recourses has assumed massive proportion and the effects are manifesting themselves in vary tangible detrimental forms.

3.11 Environmental Education and Awareness : Some Studies

Environment is a global concept today. Environmental education is an approach to learning. It endeavors to create a way of thinking requiring people to overcome prejudices. It helps in programming learning experiences ranging from the simple to complex. The principle of environmental education is that it makes the pupils education problem related to understanding the environment and hazards of its pollutions. the environmental education is socially relevant as it helps us how uncheck and unplanned developments pollutes air, water and soil and thereby threatening our subsistence and existence. Therefore, environmental education means the educational process dealing with man's

relationship with his natural and man-made surroundings and includes the relations of population resource allocation and depletion, conservations, transportation, technology, energy, urban and rural planning to the total biosphere.

On the other hand environmental awareness means to help social groups and individuals to acquire an awareness of and sensitive to the total environment and its allied problems.

The importance of environmental awareness can not be over emphasized. We must understand that to improve the environment is to improve the quality of life. It is not only a question of air and water pollution. It includes elimination of disease, hunger, malnutrition, and poverty, destruction of forests, extermination of wildlife, erosion of soil, and accumulation of waste. Hence there is an urgent need for proper management of the environment.

The man hurdle in protecting the environment in India today is that there is a lack of scientific knowledge and the will to act. In such a position society needs to be convinced of the importance of environment and we have to realize the fact that the way we live, will determine our future. As the problem is one, of the people, for the people, and by the people, a proper understanding and support of the people will go a long way in carrying out anti-pollution measures.

A number of environmental problems have just a local dimension both in rural and urban areas. People should be made aware of these. They relate to the use of water, electricity, detergents, chemicals, plastics, steel, wood etc. Above this level come to the localities, villages, and their common properties, and small towns. People should be encouraged in tree plantation and maintenance, social forestry, environment education, extension programs etc. In industrial towns the problems of industrial wastes and effluents on the one hand and growth of slums and related urbanization problems on the other, assume importance.

The present tool 'Environmental Awareness Ability Scale' purports to measure the extent and degree of awareness of people about environmental pollution and its protection. The scale explores the understanding of people about the importance of environment in which they live. And how far the efforts of govt. through various legislations, mass-awakening programmers of NGO and other agencies through mass-media, electronic media and print media could achieve their goals. Thus the present tools may prove itself very useful in assessing the knowledge of people and at the same time promoting their awareness; if they need so , about the environmental dimension of sustainable development.

In the case of environmental education at educational establishments classes at school, college or universities level serve as this medium. As referred by Hannah Hoerisch, April 2002 for CMS ENVIS Centre for as environmental education outside educational establishments is concerned mass media and traditional media like family, neighbors and colleagues have the role of the medium that enables people to communicate successfully. These three different kinds of media (institutional, mass and traditional media) will be examined to find out on their efforts made in creating environmental awareness.

Environment endangers the human race by threatening its survival on planet earth. Boundaries of any nation can not limit these environmental problems to a particular country and region, but its impact is global one. This large scale environmental degradation has caused a global concern about the conservation and protection of the earth's environment. Hence, efforts are being made for inculcating environmental consciousness or awareness among the masses. It is education which can make the human being conscious and knowledgeable about environment and environmental problems. Moreover, awareness is essential for the action. The main purpose of environmental education in schools is to acquaint and sensitize the young minds to the

environmental problems and concerns, to inculcate in them healthy personal and social attitude and behaviour towards environment. Thus, students must have awareness about environment and the problems associated with it so that they can play their role very effectively. Hence, it is necessary to know how far the school students are aware about environment and environmental problems.

Environmental Education is a process of recognising values and clarifying concepts in order to develop skills and added tools necessary to understand and appreciate the inter-relationship among man, his culture and his bio-physical surrounding. It creates an overall perspective, which acknowledges the fact that natural environment and man-made environment are interdependent. It should consider the environment in its totality and should be a continuous lifelong process beginning at the pre-school level and continuing through all stages. It should be inter-disciplinary and examine major environmental issues from local, national and international points of view. It should utilise various educational approaches to teach and learn about and from the environment with stress on practical activities and first-hand experience. It is through this process of education that people can be sensitized about the environmental issues and awareness.

CHAPTER – IV

METHODOLOGY

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4.1 Type of Research

The type of the research is descriptive survey type.

4.2 Dimension

The study was based upon four dimensions. These four dimensions covered the major aspects of Environmental Awareness. The dimension are as follows :

1. Knowledge.
2. Attitude.
3. Involvement.
4. Values.

4.3 Method of Controlling Variables

Age, Sex and Environmental Awareness are independent variables.

Age was controlled by selecting subjects of a particular group from more or less same age group.

Sex was controlled by selecting all female subjects.

Environmental Awareness was controlled by selecting all the urban subjects from a single area and again all the rural subjects from another single area.

4.4 Sample and Population

The researcher has collected the samples for his research work from a

rural and urban area. Out of 800 samples at 11th grade students out of 16 schools selected purposively from four districts namely Nadia, North 24- Parganas, Hooghly and Murshidabad in West Bengal. From the total sample 200 were S. C. of whom 100 subjects were taken from urban area and 100 subjects from rural area. 200 subjects were S.T. having 11th grade education of whom 100 were from urban area and 100 from rural area. 200 subjects were from O. B. C. of whom 100 were from urban area and 100 from rural area and finally 200 subjects were from General category and similarly 200 samples are selected randomly out of 800 each of 100 boys and girls for testing hypotheses.

4.5 Name of Schools from where Samples Collected

i) Laupala Kalpataru High School (H. S.).
ii) Fatepur High School (H. S.).
iii) Kalyani Pannalal Institution (H. S.).
iv) Taherpur Girls High School (H. S.).
v) Yasin Mondal High School (H. S.).
vi) Puinan High School (H. S.).
vii) Maharani Kaleswari Balika Vidyalay (H. S.)
viii) Chinsura Deshbandhu Bhai High School (H. S.).
ix) Chinsura Bidya Mandir (H. S.).
x) Berhampore Krishnanath High School (H. S.).
xi) Sri Guru Pathsala High School (H. S.).
xii) Arizulapur High School (H. S.).
xiii) Purba Barasat Adarsha Vidyapith (H. S.).
xiv) Vivekananda High School (H. S.).
xv) Kumarpur Parashmani Vidyapith (H. S.).
xvi) Bansberia Girls High School (H. S.).

4.6 Construction of the Tool

4.6.1 Item Collection :

In the process of selection of items the researcher took active help and guidance from some Experts, Research Guides and other resource persons, in the subject. These selected items were listed and submitted to the supervisors for their critical comments and advice for final selection of items.

4.6.2 Item Writing :

The researcher considered that the tool must have a design of an attitude scale to serve the purpose of the study. He preferred Likert type as the suitable type of attitude scale for the following reasons :

a) It is easy to construct and score.

b) It gives valuable information.

c) It does not require panel of judges and it takes less time to construct and to score.

d) Moreover it produces the same reliable data as Thurston's scale.

In this context it is noteworthy that "attitude scale provides us with one means of obtaining an assessment of the degree of affect that individuals may associate with some psychological object" (Edward, 69).

From the collected situations statements were framed expressing both positive and negative in orientation. Care was taken so that the statements were clear and specific. In the preparation of item writing four experts were consulted and their suggestions were duly incorporated.

4.7 Standardized Form of the Test

The final form of the test contains 50 items from item analysis. Each item

has to be endorsed in a 5 point scale from 'Obviously Agree' to 'Obviously Disagree' with the neutral point of 'Undecided'.

4.8 Item Analysis

The major objectives of Item Analysis are the improvement of total score reliability or total score validity, or both, the achievement of better item sequences and types of score distributions.

For the present study, at first the scores were arranged in a descending order. Then from the academic achievement scores of the students they are segregated as high group and low group students. Then the scores of top 27% of students and bottom 27% of students were determined. Then they were arranged in tabulated form. From this tabulation 't' test analysis for each item has been done.

For the item analysis, Mean of High group (M1) and the Mean of Low group (M2), Standard Deviation of High group (SD1) and the Standard Deviation of Low group (SD2) and the Validity of High group (V1) and the Validity of Low group (V2) were calculated. Thus t-test was done to get the 't' value.

Table 1 : t' test for Item Analysis

	High			Low						
Item	**M1**	**SD1**	**V1**	**M2**	**SD2**	**V2**	**MD**	**n**	**t**	**Sig. level**
1	3.31	1.34	1.80	2.57	1.63	2.66	0.74	54	2.57	**
2	4.46	1.09	1.20	3.81	1.29	1.66	0.65	54	2.82	**
3	3.76	1.33	1.77	2.59	1.43	2.06	1.17	54	4.38	**
4	4.37	1.00	0.99	2.83	1.53	2.33	1.54	54	6.20	**

	High			Low						
Item	**M1**	**SD1**	**V1**	**M2**	**SD2**	**V2**	**MD**	**n**	**t**	**Sig. level**
5	2.04	1.15	1.32	2.04	1.20	1.43	0.00	54	0.00	NS
6	4.00	1.33	1.77	2.31	1.53	2.33	1.69	54	6.11	**
7	2.70	1.21	1.46	2.11	1.22	1.50	0.59	54	2.53	*
8	3.31	1.34	1.80	2.57	1.63	2.66	0.74	54	2.57	*
9	4.04	1.32	1.73	1.96	1.12	1.24	2.07	54	8.83	**
10	2.37	1.17	1.37	1.89	1.02	1.04	0.48	54	2.28	*
11	3.91	1.36	1.86	3.13	1.47	2.15	0.78	54	2.85	**
12	4.57	0.88	0.78	3.07	1.49	2.22	1.50	54	6.37	**
13	4.15	1.25	1.56	2.70	1.62	2.63	1.44	54	5.19	**
14	2.61	1.50	2.24	1.89	1.19	1.42	0.72	54	2.77	**
15	2.87	1.23	1.51	2.57	1.09	1.19	0.30	54	1.32	NS
16	2.91	1.28	1.63	2.33	1.39	1.92	0.57	54	2.24	*
17	4.09	1.25	1.56	2.63	1.56	2.43	1.46	54	5.39	**
18	4.46	0.95	0.89	2.87	1.54	2.38	1.59	54	6.47	**
19	2.69	1.19	1.43	2.56	1.22	1.50	0.13	54	0.56	NS
20	4.13	1.13	1.28	2.93	1.40	1.96	1.20	54	4.91	**
21	2.61	1.50	2.24	1.89	1.19	1.42	0.72	54	2.77	**
22	4.20	1.19	1.41	2.56	1.53	2.33	1.65	54	6.26	**
23	2.76	1.32	1.73	2.22	1.19	1.42	0.54	54	2.22	*
24	3.76	1.26	1.58	2.44	1.50	2.25	1.31	54	4.93	**

	High			Low						
Item	**M1**	**SD1**	**V1**	**M2**	**SD2**	**V2**	**MD**	**n**	**t**	**Sig. level**
25	4.63	0.92	0.84	4.39	1.12	1.26	0.24	54	1.22	NS
26	4.46	1.09	1.20	3.81	1.29	1.66	0.65	54	2.82	**
27	4.31	0.84	0.71	2.85	1.48	2.20	1.46	54	6.30	**
28	4.37	1.03	1.07	4.09	1.23	1.52	0.28	54	1.27	NS
29	4.13	1.13	1.28	2.93	1.40	1.96	1.20	54	4.91	**
30	2.50	1.44	2.07	2.02	1.16	1.34	0.48	54	1.92	NS
31	4.41	0.98	0.96	2.31	1.36	1.84	2.09	54	9.18	**
32	4.19	1.17	1.36	2.48	1.48	2.18	1.70	54	6.65	**
33	4.11	1.22	1.50	2.81	1.66	2.76	1.30	54	4.62	**
34	4.48	0.97	0.93	2.59	1.49	2.21	1.89	54	7.83	**
35	2.83	1.41	1.99	2.20	1.20	1.45	0.63	54	2.50	*
36	2.91	1.50	2.24	1.87	1.17	1.36	1.04	54	4.02	**
37	4.13	1.13	1.28	2.93	1.40	1.96	1.20	54	4.91	**
38	2.44	1.31	1.72	2.48	1.38	1.91	-0.04	54	0.14	NS
39	3.30	1.40	1.95	2.72	1.38	1.90	0.57	54	2.15	*
40	3.54	1.49	2.22	2.20	1.29	1.67	1.33	54	4.97	**
41	2.31	1.38	1.92	1.44	0.90	0.82	0.87	54	3.87	**
42	4.17	1.18	1.39	2.31	1.44	2.07	1.85	54	7.32	**
43	2.56	1.22	1.50	1.94	1.09	1.19	0.61	54	2.74	**
44	4.02	1.30	1.68	2.91	1.63	2.65	1.11	54	3.92	**

	High			Low						
Item	**M1**	**SD1**	**V1**	**M2**	**SD2**	**V2**	**MD**	**n**	**t**	**Sig. level**
45	3.17	1.38	1.92	1.96	0.97	0.94	1.20	54	5.23	**
46	2.52	1.37	1.88	1.93	1.10	1.20	0.59	54	2.48	*
47	4.37	1.00	0.99	2.83	1.53	2.33	1.54	54	6.20	**
48	2.61	1.50	2.24	1.89	1.19	1.42	0.72	54	2.77	**
49	2.91	1.28	1.63	2.33	1.39	1.92	0.57	54	2.24	*
50	4.31	0.84	0.71	2.85	1.48	2.20	1.46	54	6.30	**
51	3.31	1.34	1.80	2.57	1.63	2.66	0.74	54	2.57	*
52	4.11	1.22	1.50	2.81	1.66	2.76	1.30	54	4.62	**
53	4.02	1.30	1.68	2.91	1.63	2.65	1.11	54	3.92	**
54	3.17	1.38	1.92	1.96	0.97	0.94	1.20	54	5.23	**
55	2.52	1.37	1.88	1.93	1.10	1.20	0.59	54	2.48	*
56	4.37	1.00	0.99	2.83	1.53	2.33	1.54	54	6.20	**
57	2.61	1.50	2.24	1.89	1.19	1.42	0.72	54	2.77	**

4.9 Reliability of the Test

A test is called reliable when there are reasons for believing the test to be stable and trustworthy. The correlation of the test with itself is called the reliability coefficient of the test.

The reliability coefficient was computed between the test and retest scores of those 36 selected subjects. For this the researcher followed the product moment method. The formula to compute correlation by this method –

$$r = \frac{N\Sigma XY - \Sigma X \times \Sigma Y}{\sqrt{[N\Sigma X^2 - (\Sigma X)^2]\,[N\Sigma Y^2 - (\Sigma Y)^2]}}$$

But, as the raw scores were expressed in 3 digits they were reduced by subtracting a constant quantity from each of the original X and Y scores (Garrett, 1966).

So the formula applied finally, was –

$$r = \frac{N\Sigma X'Y' - \Sigma X' \times \Sigma Y'}{\sqrt{[N\Sigma X'^2 - (\Sigma X')^2]\,[N\Sigma Y'^2 - (\Sigma Y')^2]}}$$

where

X' = reduced test score

Y' = reduced retest score

N = number of subjects

$$r = \frac{N\Sigma X'Y' - \Sigma X' \times \Sigma Y'}{\sqrt{[N\Sigma X'^2 - (\Sigma X')^2]\,[N\Sigma Y'^2 - (\Sigma Y')^2]}}$$

$$= \frac{36 \times 13464 - (-368)(-359)}{\sqrt{[36 \times 18446 - (-368)^2][36 \times 14631 - (-359)^2]}}$$

$$= \frac{484704 - 123112}{\sqrt{(664056 - 135424)(526716 - 128881)}}$$

$$= \mathbf{0.879}$$

4.10 Validity of the Test :

The validity of a test depends upon the efficiency with which it measures, what it purports to measure. To say more actually a test is valid in proportion as it measures well, what it desires to measure.

Validity of a test are of two types from the point of its determination. They are logical validity and imperial validity. Logical validity are of two types

1. Content validity, 2. Construct validity

On the other hand the empirical validity are of two types –

1. Predictive validity, 2. Concurrent validity.

In the present study, the questionnaire included 57 items at the initial stage. The it was placed to four experts. After careful examination and Item Analysis, the final form of 50 items have been selected finally.

4.11 Mode of Collection of Data and its Interpretation

The researcher, considering the nature of the problem, thought that the present study would be conducted by survey method of research, because the survey method of research, is generally used for type of research that proposes to certain what is normal or typical condition or practice at the present time and no data was created by the investigator, he just collected them and interpreted them.

4.12 Area of Investigation

The investigator collected half of the sample from urban schools and the other half of the sample from the rural schools.

4.13 Scoring and Interpretation of the Data

To score the questionnaire the investigator followed the 5 point scale of Likert method. The test, constructed by the researcher consisted of 50 items consisting of both positive type and negative type questions, the answer of

which should be as per attitude of subjects participated in survey. So the highest number one could get was 250.

4.14 Testing the Hypotheses

The hypotheses were tested through inferential statistics by applying t-test given below applied in four social groups on four dimensions of Environmental Awareness : a) Schedule Cast b) Schedule Tribe c) OBC d) General with the following formula –

$$t = \frac{M_1 \sim M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

where, M_1 = Mean for First Group.

M_2 = Mean for Second Group.

σ_1 = Standard deviation for First Group

σ_2 = Standard deviation for Second Group

N_1 and N_2 = Sizes of the samples.

1. Hypothesis – 1 :

There is no significant mean difference of schedule caste urban and rural Students in respect to their knowledge towards Environmental Awareness.

Here the samples are large and independent and kurtosis is approximately normal. So the following formula was applied.

$$t = \frac{M_1 \sim M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

where, M_1 = Mean for First Group.

M_2 = Mean for Second Group.

σ_1 = Standard deviation for First Group

σ_2 = Standard deviation for Second Group

N_1 and N_2 = Sizes of the samples.

Table – 1

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	168.26	16.28	100	142.40	8.50	198	14.13	**

Therefore, the obtained t value is 14.13and the degree of freedom for use is 99 + 99 or 198. This is a two tailed test. Obtained t-value is highly significant at 0.01 level. Therefore the hypothesis is rejected.

2. Hypothesis – 2 :

There is no significant mean difference of schedule caste urban and rural Students in respect to their attitude towards Environmental Awareness.

Here the samples are large and independent and kurtosis is approximately normal. So the following formula was applied.

$$t = \frac{M_1 \sim M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

where, M_1 = Mean for First Group.

M_2 = Mean for Second Group.

σ_1 = Standard deviation for First Group

σ_2 = Standard deviation for Second Group

N_1 and N_2 = Sizes of the samples.

Table – 2

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	189.56	6.08	100	178.88	7.46	198	11.24	**

Hence obtained t value is 11.04 and the degrees of freedom for use in testing the t value is 100 + 100 – 2 = 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

Hypothesis – 3 :

There is no significant mean difference of schedule caste urban and rural Students in respect to their involvement towards Environmental Awareness.

Here the samples are large and independent and kurtosis is approximately normal. So the following formula was applied.

$$t = \frac{M_1 \sim M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

where, M_1 = Mean for First Group.

M_2 = Mean for Second Group.

σ_1 = Standard deviation for First Group

σ_2 = Standard deviation for Second Group

N_1 and N_2 = Sizes of the samples.

Table – 3

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	173.60	6.87	100	168.76	5.20	198	5.66	**

Hence, the obtained t value is 5.66 and the degrees of freedom for use in testing the t value is 100 + 100 – 2 = 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

Hypothesis – 4 :

There is no significant mean difference of schedule caste urban and rural Students in respect to their values towards Environmental Awareness.

Here the samples are large and independent and kurtosis is approximately normal. So the following formula was applied.

$$t = \frac{M_1 \sim M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

where, M_1 = Mean for First Group.

M_2 = Mean for Second Group.

σ_1 = Standard deviation for First Group

σ_2 = Standard deviation for Second Group

N_1 and N_2 = Sizes of the samples.

Table – 4

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	145.20	4.55	100	143.40	4.46	198	2.85	**

Hence, the obtained t value is 2.85 and the degrees of freedom for use in testing the t value is 198. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

5. Hypothesis – 5 :

There is no significant mean difference **of schedule tribe** urban and rural students in respect to their knowledge towards Environmental Awareness.

Here the samples are large and independent and kurtosis is approximately normal. So the following formula was applied.

$$t = \frac{M_1 \sim M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

where, M_1 = Mean for First Group.

M_2 = Mean for Second Group.

σ_1 = Standard deviation for First Group

σ_2 = Standard deviation for Second Group

N_1 and N_2 = Sizes of the samples.

Table – 5

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	175.26	16.28	100	152.40	8.50	198	12.49	**

Therefore, the obtained t value is 12.49 and the degree of freedom for use is 198. This is a two tailed test. For 198 df, the t critical value at 0.01 level is 2.60. Hence the obtained t-value is highly significant at 0.01 level. Therefore the hypothesis is rejected.

6. Hypothesis – 6 :

There is no significant mean difference of schedule tribe urban and rural Students in respect to their attitude towards Environmental Awareness.

Here the samples are large and independent and kurtosis is approximately normal. So the following formula was applied.

$$t = \frac{M_1 \sim M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

where, M_1 = Mean for First Group.

M_2 = Mean for Second Group.

σ_1 = Standard deviation for First Group

σ_2 = Standard deviation for Second Group

N_1 and N_2 = Sizes of the samples.

Table – 6

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	181.52	6.11	100	158.88	7.23	198	24.08	**

Hence obtained t value is 24.08 and the degrees of freedom for use in testing the t value is 100 + 100 – 2 = 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

7. Hypothesis – 7 :

There is no significant mean difference of schedule tribe urban and rural Students in respect to their involvement towards Environmental Awareness. Here the samples are large and independent and kurtosis is approximately normal. So the following formula was applied.

$$t = \frac{M_1 \sim M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

where, M1 = Mean for First Group.

M2 = Mean for Second Group.

σ_1 = Standard deviation for First Group

σ_2 = Standard deviation for Second Group

N1 and N2 = Sizes of the samples.

Table – 7

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	177.60	5.98	100	148.76	7.00	198	31.69	**

Hence, the obtained t value is 31.69and the degrees of freedom for use in testing the t value is 100 + 100 – 2 = 198. For 48 df the t critical value for two tailed test at 0.05 level is 2.01. Therefore, the obtained t value is significant at 0.05 level and hence the hypothesis is rejected.

8. Hypothesis – 8 :

There is no significant mean difference of schedule tribe urban and rural Students in respect to their values towards Environmental Awareness.

Here the samples are large and independent and kurtosis is approximately normal. So the following formula was applied.

$$t = \frac{M_1 \sim M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

where, M_1 = Mean for First Group.

M_2 = Mean for Second Group.

σ_1 = Standard deviation for First Group

σ_2 = Standard deviation for Second Group

N_1 and N_2 = Sizes of the samples.

Table – 8

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	156.20	5.65	100	134.40	6.63	198	25.05	**

Hence, the obtained t value is 25.05 and the degrees of freedom for use in testing the t value is 198. For 198 degrees of freedom the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

9. Hypothesis – 9 :

There is no significant mean difference of OBC urban and rural Students in respect to their knowledge towards Environmental Awareness.

Here the samples are large and independent and kurtosis is approximately normal. So the following formula was applied.

$$t = \frac{M_1 \sim M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

where, M1 = Mean for First Group.

M2 = Mean for Second Group.

σ_1 = Standard deviation for First Group

σ_2 = Standard deviation for Second Group

N1 and N2 = Sizes of the samples.

Table – 9

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	175.56	6.01	100	177.88	7.23	198	2.47	**

Hence obtained t value is 2.47 and the degrees of freedom for use in testing the t value is 100 + 100 – 2 = 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is not significant at 0.01 level and hence the hypothesis is retained.

10. Hypothesis – 10 :

There is no significant mean difference of OBC urban and rural Students in respect to their attitude towards Environmental Awareness.

Here the samples are large and independent and kurtosis is approximately normal. So the following formula was applied.

$$t = \frac{M_1 \sim M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

where, M_1 = Mean for First Group.

M_2 = Mean for Second Group.

σ_1 = Standard deviation for First Group

σ_2 = Standard deviation for Second Group

N_1 and N_2 = Sizes of the samples.

Table – 10

N_1	M_1	SD_1	N_2	M_2	SD_2	N1	t-value	Significance
100	186.56	6.20	100	169.58	7.47	198	16.49	**

Hence obtained t value is 16.49and the degrees of freedom for use in testing the t value is 100 + 100 – 2 = 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

11. Hypothesis – 11:

There is no significant mean difference of OBC urban and rural students in respect to their involvement towards Environmental Awareness.

Here the samples are large and independent and kurtosis is approximately normal. So the following formula was applied.

$$t = \frac{M_1 \sim M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

where, M1 = Mean for First Group.

M2 = Mean for Second Group.

σ_1 = Standard deviation for First Group

σ_2 = Standard deviation for Second Group

N1 and N2 = Sizes of the samples.

Table – 11

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	189.66	6.25	100	188.55	7.67	198	1.17	**

Hence obtained t value is 11.17 and the degrees of freedom for use in testing the t value is 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is not significant at 0.01 level and hence the hypothesis is retained.

12. Hypothesis – 12 :

There is no significant mean difference of OBC urban and rural Students in respect to their values towards Environmental Awareness.

Here the samples are large and independent and kurtosis is approximately normal. So the following formula was applied.

$$t = \frac{M_1 \sim M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

where, M_1 = Mean for First Group.

M_2 = Mean for Second Group.

σ_1 = Standard deviation for First Group

σ_2 = Standard deviation for Second Group

N_1 and N_2 = Sizes of the samples.

Table – 12

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	189.56	6.25	100	178.88	7.68	198	10.78	**

Hence obtained t value is 10.78 and the degrees of freedom for use in testing the t value is 100 + 100 – 2 = 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

13. Hypothesis – 13 :

There is no significant mean difference of General urban and rural Students in respect to their knowledge towards Environmental Awareness.

Here the samples are large and independent and kurtosis is approximately normal. So the following formula was applied.

$$t = \frac{M_1 \sim M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

where, M_1 = Mean for First Group.

M_2 = Mean for Second Group.

σ_1 = Standard deviation for First Group

σ_2 = Standard deviation for Second Group

N_1 and N_2 = Sizes of the samples.

Table – 13

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	179.56	6.08	100	180.88	7.46	198	1.38	**

Hence obtained t value is 1.38 and the degrees of freedom for use in testing the t value is 100 + 100 – 2 = 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is not significant at 0.01 level and hence the hypothesis is retained.

14. Hypothesis –14 :

There is no significant mean difference of General urban and rural Students in respect to their attitude towards Environmental Awareness.

Here the samples are large and independent and kurtosis is approximately normal. So the following formula was applied.

$$t = \frac{M_1 \sim M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

where, M_1 = Mean for First Group.

M_2 = Mean for Second Group.

σ_1 = Standard deviation for First Group

σ_2 = Standard deviation for Second Group

N_1 and N_2 = Sizes of the samples.

Table – 14

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	165.56	5.84	100	158.81	7.23	198	7.33	**

Hence obtained t value is 7.33 and the degrees of freedom for use in testing the t value is 100 + 100 – 2 = 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

15. Hypothesis – 15 :

There is no significant mean difference of General urban and rural Students in respect to their involvement towards Environmental Awareness.

Here the samples are large and independent and kurtosis is approximately normal. So the following formula was applied.

$$t = \frac{M_1 \sim M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

where, M_1 = Mean for First Group.

M_2 = Mean for Second Group.

σ_1 = Standard deviation for First Group

σ_2 = Standard deviation for Second Group

N_1 and N_2 = Sizes of the samples.

Table – 15

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	181.56	6.11	100	166.88	7.41	198	15.29	**

Hence obtained t value is 15.29 and the degrees of freedom for use in testing the t value is 100 + 100 – 2 = 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

16. Hypothesis – 16 :

There is no significant mean difference of General urban and rural Students in respect to their values towards Environmental Awareness.

Here the samples are large and independent and kurtosis is approximately normal. So the following formula was applied.

$$t = \frac{M_1 \sim M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

where, M_1 = Mean for First Group.

M_2 = Mean for Second Group.

σ_1 = Standard deviation for First Group

σ_2 = Standard deviation for Second Group

N_1 and N_2 = Sizes of the samples.

Table – 16

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	169.44	5.91	100	156.92	7.19	198	13.60	**

Hence obtained t value is 13.60 and the degrees of freedom for use in testing the t value is 100+ 100– 2 = 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

17. Hypothesis – 17 :

There is no significant mean difference of **Schedule Caste** boys and girls in respect to their knowledge towards Environmental Awareness. Here the samples are large and independent and kurtosis is approximately normal. So the following formula was applied.

$$t = \frac{M_1 \sim M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

where, M_1 = Mean for First Group.

M_2 = Mean for Second Group.

σ_1 = Standard deviation for First Group

σ_2 = Standard deviation for Second Group

N_1 and N_2 = Sizes of the samples.

Table – 17

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	177.56	6.08	100	168.88	7.46	198	9.04	**

Hence obtained t value is 9.04 and the degrees of freedom for use in testing the t value is 100 + 100 – 2 = 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

18. Hypothesis – 18 :

There is no significant mean difference of Schedule Caste boys and girls in respect to their attitude towards Environmental Awareness.

Here the samples are large and independent and kurtosis is approximately normal. So the following formula was applied.

$$t = \frac{M_1 \sim M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

where, M_1 = Mean for First Group.

M_2 = Mean for Second Group.

σ_1 = Standard deviation for First Group

σ_2 = Standard deviation for Second Group

N_1 and N_2 = Sizes of the samples.

Table – 18

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	169.56	6.08	100	158.88	7.46	198	11.12	**

Hence obtained t value is 11.12 and the degrees of freedom for use in testing the t value is 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

19. Hypothesis – 19 :

There is no significant mean difference of Schedule Caste boys and girls in respect to their involvement towards Environmental Awareness.

Here the samples are large and independent and kurtosis is approximately normal. So the following formula was applied.

$$t = \frac{M_1 \sim M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

where, M_1 = Mean for First Group.

M_2 = Mean for Second Group.

σ_1 = Standard deviation for First Group

σ_2 = Standard deviation for Second Group

N_1 and N_2 = Sizes of the samples.

Table – 19

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	177.16	6.04	100	165.78	7.39	198	11.98	**

Hence obtained t value is 11.98 and the degrees of freedom for use in testing the t value is 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

20. Hypothesis – 20

There is no significant mean difference of Schedule Caste boys and girls in respect to their values towards Environmental Awareness.

Here the samples are large and independent and kurtosis is approximately normal. So the following formula was applied.

$$t = \frac{M_1 \sim M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

where, M_1 = Mean for First Group.

M_2 = Mean for Second Group.

σ_1 = Standard deviation for First Group

σ_2 = Standard deviation for Second Group

N_1 and N_2 = Sizes of the samples.

Table – 20

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	176.16	6.04	100	165.78	7.39	198	10.92	**

Hence obtained t value is 10.92 and the degrees of freedom for use in testing the t value is 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

Hypothesis – 21 :

There is no significant mean difference of Schedule Tribe boys and girls in respect to their knowledge towards Environmental Awareness.

Here the samples are large and independent and kurtosis is approximately normal. So the following formula was applied.

$$t = \frac{M_1 \sim M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

where, M_1 = Mean for First Group.

M_2 = Mean for Second Group.

σ_1 = Standard deviation for First Group

σ_2 = Standard deviation for Second Group

N_1 and N_2 = Sizes of the samples.

Table – 21

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	179.56	6.08	100	168.88	7.46	198	9.72	**

Hence obtained t value is 9.72 and the degrees of freedom for use in testing the t value is 100 + 100 – 2 = 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

Hypothesis – 22 :

There is no significant mean difference of Schedule Tribe boys and girls in respect to their attitude towards Environmental Awareness.

Here the samples are large and independent and kurtosis is approximately normal. So the following formula was applied.

$$t = \frac{M_1 \sim M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

where, M_1 = Mean for First Group.

M_2 = Mean for Second Group.

σ_1 = Standard deviation for First Group

σ_2 = Standard deviation for Second Group

N_1 and N_2 = Sizes of the samples.

Table – 22

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	159.56	6.08	100	168.88	7.46	198	9.70	**

Hence obtained t value is 9.70and the degrees of freedom for use in testing the t value is 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

Hypothesis – 23 :

There is no significant mean difference of schedule tribe boys and girls in respect to their involvement towards Environmental Awareness.

Here the samples are large and independent and kurtosis is approximately normal. So the following formula was applied.

$$t = \frac{M_1 \sim M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

where, M_1 = Mean for First Group.

M_2 = Mean for Second Group.

σ_1 = Standard deviation for First Group

σ_2 = Standard deviation for Second Group

N_1 and N_2 = Sizes of the samples.

Table – 23

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	167.16	6.04	100	155.78	7.39	198	11.98	**

Hence obtained t value is 11.98 and the degrees of freedom for use in testing the t value is 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

Hypothesis – 24 :

There is no significant mean difference of Schedule Tribe boys and girls in respect to their values towards Environmental Awareness.

Here the samples are large and independent and kurtosis is approximately normal. So the following formula was applied.

$$t = \frac{M_1 \sim M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

where, M1 = Mean for First Group.

M2 = Mean for Second Group.

σ_1 = Standard deviation for First Group

σ_2 = Standard deviation for Second Group

N1 and N2 = Sizes of the samples.

Table – 24

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	171.16	6.04	100	175.78	7.39	198	4.86	**

Hence obtained t value is 4.86 and the degrees of freedom for use in testing the t value is 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

Hypothesis – 25 :

There is no significant mean difference of OBC boys and girls in respect to their knowledge towards Environmental Awareness.

Here the samples are large and independent and kurtosis is approximately normal. So the following formula was applied.

$$t = \frac{M_1 \sim M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

where, M1 = Mean for First Group.

M2 = Mean for Second Group.

σ_1 = Standard deviation for First Group

σ_2 = Standard deviation for Second Group

N1 and N2 = Sizes of the samples.

Table – 25

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	145.36	6.08	100	158.88	7.46	198	14.08	**

Hence obtained t value is 11.04 and the degrees of freedom for use in testing the t value is 100 + 100 – 2 = 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

Hypothesis – 26 :

There is no significant mean difference of OBC boys and girls in respect to their attitude towards Environmental Awareness.

Here the samples are large and independent and kurtosis is approximately normal. So the following formula was applied.

$$t = \frac{M_1 \sim M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

where, M1 = Mean for First Group.

M2 = Mean for Second Group.

σ_1 = Standard deviation for First Group

σ_2 = Standard deviation for Second Group

N1 and N2 = Sizes of the samples.

Table – 26

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	179.56	6.08	100	168.88	7.46	198	11.12	**

Hence obtained t value is 11.12 and the degrees of freedom for use in testing the t value is 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

Hypothesis – 27 :

There is no significant mean difference of OBC boys and girls in respect to their involvement towards Environmental Awareness.

Here the samples are large and independent and kurtosis is approximately normal. So the following formula was applied.

$$t = \frac{M_1 \sim M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

where, M_1 = Mean for First Group.

M_2 = Mean for Second Group.

σ_1 = Standard deviation for First Group

σ_2 = Standard deviation for Second Group

N_1 and N_2 = Sizes of the samples.

Table – 27

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	166.16	6.04	100	165.78	7.39	198	0.40	**

Hence obtained t value is 0.40and the degrees of freedom for use in testing the t value is 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is not significant at 0.01 level and hence the hypothesis is rejected.

Hypothesis – 28 :

There is no significant mean difference of OBC boys and girls in respect to their values towards Environmental Awareness.

Here the samples are large and independent and kurtosis is approximately normal. So the following formula was applied.

$$t = \frac{M_1 \sim M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

where, M_1 = Mean for First Group.

M_2 = Mean for Second Group.

σ_1 = Standard deviation for First Group

σ_2 = Standard deviation for Second Group

N_1 and N_2 = Sizes of the samples.

Table – 28

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	167.16	6.04	100	155.78	7.39	198	11.98	**

Hence obtained t value is 11.98and the degrees of freedom for use in testing the t value is 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

Hypothesis – 29 :

There is no significant mean difference of General boys and girls in respect to their knowledge towards Environmental Awareness.

Here the samples are large and independent and kurtosis is approximately normal. So the following formula was applied.

$$t = \frac{M_1 \sim M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

where, M_1 = Mean for First Group.

M_2 = Mean for Second Group.

σ_1 = Standard deviation for First Group

σ_2 = Standard deviation for Second Group

N_1 and N_2 = Sizes of the samples.

Table – 29

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	181.56	6.08	100	169.88	7.46	198	12.16	**

Hence obtained t value is 12.16 and the degrees of freedom for use in testing the t value is 100 + 100 – 2 = 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

Hypothesis – 30 :

There is no significant mean difference of General boys and girls in respect to their attitude towards Environmental Awareness.

Here the samples are large and independent and kurtosis is approximately normal. So the following formula was applied.

$$t = \frac{M_1 \sim M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

where, M_1 = Mean for First Group.

M_2 = Mean for Second Group.

σ_1 = Standard deviation for First Group

σ_2 = Standard deviation for Second Group

N_1 and N_2 = Sizes of the samples.

Table – 30

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	174.56	6.08	100	168.88	7.46	198	5.91	**

Hence obtained t value is 5.91and the degrees of freedom for use in testing the t value is 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

Hypothesis – 31 :

There is no significant mean difference of General boys and girls in respect to their involvement towards Environmental Awareness.

Here the samples are large and independent and kurtosis is approximately normal. So the following formula was applied.

$$t = \frac{M_1 \sim M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

where, M_1 = Mean for First Group.

M_2 = Mean for Second Group.

σ_1 = Standard deviation for First Group

σ_2 = Standard deviation for Second Group

N_1 and N_2 = Sizes of the samples.

Table – 31

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	176.16	6.04	100	155.78	7.39	198	21.24	**

Hence obtained t value is 21.24and the degrees of freedom for use in testing the t value is 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

Hypothesis –32 :

There is no significant mean difference of General boys and girls in respect to their values towards Environmental Awareness.

Here the samples are large and independent and kurtosis is approximately normal. So the following formula was applied.

$$t = \frac{M_1 \sim M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

where, M_1 = Mean for First Group.

M_2 = Mean for Second Group.

σ_1 = Standard deviation for First Group

σ_2 = Standard deviation for Second Group

N_1 and N_2 = Sizes of the samples.

Table – 32

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	170.16	6.04	100	165.78	7.39	198	4.61	**

Hence obtained t value is 4.61 and the degrees of freedom for use in testing the t value is 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

4.15 Calculation and Interpretation

Table 2 : Promote environmental education through awareness is a social need

	SA	A	UN	DA	SDA
Observed (fo)	54	75	30	31	20
Expected (fe)	40	40	40	40	40

Table Value = 13.28 χ^2 = 50.06 df = 4 P = 0.01

Interpretation : Table 2 shows that the value of χ^2 was found to be 50.06 which is greater than the table value. Hence, the result is significant at 0.01 level, Therefore, the statement is accepted.

Table 3 : India has a great role in conservation of Environment

	SA	A	UN	DA	SDA
Observed (fo)	45	72	30	31	32
Expected (fe)	40	40	40	40	40

Table Value = 13.28 χ^2 = 32.35 df = 4 P = 0.01

Interpretation : Table 3 shows that the value of χ^2 (calculated) is 32.35 which is greater than the table value. Hence, the result is significant at 0.01 level.

Table 4 : Our animals and plants can be preserved only through conservation of Environment

	SA	A	UN	DA	SDA
Observed (fo)	52	75	27	31	25
Expected (fe)	40	40	40	40	40

Table Value = 13.28 χ^2 = 46.79 df = 4 P = 0.01

Interpretation : Table 4 shows that the value of χ^2 (calculated) is 46.79 which is greater than the table value and the result is significant at 0.01 level. Therefore, the statement is accepted.

Table 5 : Overall knowledge about Environment should be a part of education

	SA	A	UN	DA	SDA
Observed (fo)	50	75	26	31	28
Expected (fe)	40	40	40	40	40

Table Value = 13.28 χ^2 = 44.33 df = 4 P = 0.01

Interpretation : Table 5 shows that the value of χ^2 (calculated) is 44.33 which is greater than the table value and the result is significant at 0.01 level.

Table 6 : Backward classes have lower environmental awareness

	SA	A	UN	DA	SDA
Observed (fo)	66	76	35	31	30
Expected (fe)	40	40	40	40	40

Table Value = 13.28 χ^2 = 54.46 df = 4 P = 0.01

Interpretation : Table 6 shows that the value of χ^2 was found 54.46 which is greater than the table value and the result is significant at 0.01 level.

Table 7 : The chemicals used to protect the crop from insect are harmful for other animals of the field, like birds, frog, earthworm etc.

	SA	A	UN	DA	SDA
Observed (fo)	45	80	25	31	29
Expected (fe)	40	40	40	40	40

Table Value = 9.49 χ^2 = 51.32 df = 4 p=.01

Interpretation : Table 7 shows that the value of χ^2 was found 51.32 which is greater than the table value and the result is significant at 0.01 level. Therefore, the statement is accepted.

Table 8 : Sympathetic attitudes towards environment should be developed among general people

	SA	A	UN	DA	SDA
Observed (fo)	49	72	25	31	33
Expected (fe)	40	40	40	40	40

Table Value = 13.28 χ^2 = 36.5 df = 4 P = 0.01

Interpretation : Table 8 shows that the value of χ^2 came to 36.5 when calculated which is greater than the table value and the result is significant at 0.01 level. Therefore, the statement is accepted.

Table 9 : It is our responsibility to participate in different programmes of environmental awareness

	SA	A	UN	DA	SDA
Observed (fo)	49	65	38	31	27
Expected (fe)	40	40	40	40	40

Table Value = 13.28 χ^2 = 24.02 df = 4 P = 0.01

Interpretation : Table 9 shows that the value of χ^2 when calculated came to 24.02 which is greater than the table value and the result is significant at 0.01 level.

Table 10 : Achievement and awareness are keenly related on the basis environmental values

	SA	A	UN	DA	SDA
Observed (fo)	65	72	35	31	39
Expected (fe)	40	40	40	40	40
Table Value = 13.28	χ^2 = 43.92		df = 4		p=.01

Interpretation : Table 10 shows that the value of χ^2 (calculated) was found 43.92 which is greater than the table value and the result is significant at 0.01 level. Therefore, the statement is accepted.

Table 11 : For the lack of favorable environment and to protect diversity necessary arrangements to be created

	SA	A	UN	DA	SDA
Observed (fo)	55	72	31	31	33
Expected (fe)	40	40	40	40	40
Table Value = 13.28	χ^2 = 39.26		df = 4		P = 0.01

Interpretation : Table 11 shows that the value of χ^2 (calculated) is 39.26 which is greater than the table value and the result is significant at 0.01 level. Therefore, the statement is accepted.

Table 12 : Backward classes have greater awareness regarding environment as their life pattern is very much linked and dependent on Environment

	SA	A	UN	DA	SDA
Observed (fo)	60	72	36	31	33
Expected (fe)	40	40	40	40	40
Table Value = 13.28	χ^2 = 39.26		df = 4		P = 0.01

Interpretation : Table 12 shows that the value of χ^2 (calculated) is 39.26 which is greater than the table value and the result is significant at 0.01 level. Therefore, the statement is accepted.

Table 13 : Lack of awareness about conservation has caused extinction of golden toad, rhinoceros, different types of birds, iguana etc loosing Biodiversity

	SA	A	UN	DA	SDA
Observed (fo)	51	70	38	31	20
Expected (fe)	40	40	40	40	40
Table Value = 13.28	$\chi 2$ = 37.66		df = 4		P = 0.01

Interpretation : Table 13 shows that the value of χ^2 was found to be 37.66 is greater than the table value and the result is significant at 0.01 level.

Table 14 : Cutting few trees if required is harmful

	SA	A	UN	DA	SDA
Observed (fo)	49	72	25	31	33
Expected (fe)	40	40	40	40	40
Table Value = 13.28	χ^2 = 36.52		df = 4		P = 0.01

Interpretation : Table 14 shows that the value of χ^2 was found 36.52 which is greater than the table value and the result is significant at 0.01 level. Therefore, the statement is accepted.

Table 15 : Wild life conservation, creation of national park and other preservative measures are necessary for maintaining Environmental Awareness

	SA	A	UN	DA	SDA
Observed (fo)	49	72	25	31	33
Expected (fe)	40	40	40	40	40
Table Value = 13.28	χ^2 = 36.52		df = 4		P = 0.01

Interpretation : Table 15 shows that the value of χ^2 (calculated) is 36.52 which is greater than the table value and the result is significant at 0.01 level. Therefore, the statement is accepted

Table 16 : Human values can protect environment

	SA	A	UN	DA	SDA
Observed (fo)	58	63	25	29	25
Expected (fe)	40	40	40	40	40
Table Value = 13.28	χ^2 = 35.62		df = 4		P = 0.01

Interpretation : Table 16 shows that the value of χ^2 (calculated) is 35.62 which is greater than the table value and the result is significant at 0.01 level. Therefore, the statement is accepted

Table 17 : Tribal areas are more environment friendly

	SA	A	UN	DA	SDA
Observed (fo)	50	71	28	31	30
Expected (fe)	40	40	40	40	40
Table Value = 13.28	χ^2 = 34.66		df = 4		P = 0.05

Interpretation : Table 17 shows that the value of χ^2 (calculated) is 34.66 which is greater than the table value and the result is significant at 0.05 level. Therefore, the statement is accepted.

Table 18 : Conservation of plant ecology and creation of national plant parks are necessary for conservation of ecological balance

	SA	A	UN	DA	SDA
Observed (fo)	55	70	26	26	23
Expected (fe)	40	40	40	40	40
Table Value = 9.49	χ^2 = 45.16		df = 4		P = 0.01

Interpretation : Table 18 shows that the value of χ^2 (calculated) is 45.16 which is greater than the table value and the result is significant at 0.01 level. Therefore, the statement is accepted.

Table 19 : Natural influence and contribution in curriculum are influencing for generating environmental awareness

	SA	A	UN	DA	SDA
Observed (fo)	59	72	25	26	28
Expected (fe)	40	40	40	40	40
Table Value = 13.28	χ^2 = 48.76		df = 4		P = 0.01

Interpretation : Table 19 shows that the value of χ^2 (calculated) is 48.76 which is greater than the table value and the result is significant at 0.01 level. Therefore, the statement is accepted.

Table 20 : Education system should follow the environmental objectives effectively in implementing curriculum

	SA	A	UN	DA	SDA
Observed (fo)	60	72	25	27	26
Expected (fe)	40	40	40	40	40
Table Value = 13.28	χ^2 = 50.36		df = 4		P = 0.01

Interpretation : Table 20 shows that the value of χ^2 (calculated) is 50.36 which is greater than the table value and the result is significant at 0.01 level. Therefore, the statement is accepted.

Table 21 : The main source to protect biodiversity is Environmental Awareness

	SA	A	UN	DA	SDA
Observed (fo)	58	72	25	26	29
Expected (fe)	40	40	40	40	40
Table Value = 13.28	χ^2 = 47.26		df = 4		P = 0.01

Interpretation : Table 21 shows that the value of χ^2 (calculated) is 47.26 which is greater than the table value and the result is significant at 0.01 level. Therefore, the statement is accepted

Table 22 : The element of awareness is not sufficient without knowledge, understanding, the change of attitude and physical participation

	SA	A	UN	DA	SDA
Observed (fo)	55	69	28	37	25
Expected (fe)	40	40	40	40	40

Table Value = 13.28 χ^2 = 35.97 df = 4 P = 0.01

Interpretation : Table 22 shows that the value of χ^2 (calculated) is 35.97which is greater than the table value and the result is significant at 0.01 level. Therefore, the statement is accepted.

Table 23 : School Curriculum has focused towards the aspects of values had been taught through their subjects and co- curricular activities for environmental awareness

	SA	A	UN	DA	SDA
Observed (fo)	41	72	29	31	37
Expected (fe)	40	40	40	40	40

Table Value = 13.28 χ^2 = 30.92 df = 4 P = 0.01

Interpretation : Table 23 shows that the value of χ^2 (calculated) is 30.92 which is greater than the table value and the result is significant at 0.01 level. Therefore, the statement is accepted.

Table 24 : Plantation is an urgent need for protecting and awareness generating programme

	SA	A	UN	DA	SDA
Observed (fo)	45	72	25	31	37
Expected (fe)	40	40	40	40	40

Table Value = 13.28 χ^2 = 34.12 df = 4 P = 0.01

Interpretation : Table 24 shows that the value of χ^2 (calculated) is 34.12 which is greater than the table value and the result is significant at 0.01 level. Therefore, the statement is accepted.

Table 25 : Environment knowledge can enhance awareness

	SA	A	UN	DA	SDA
Observed (fo)	42	72	25	31	40
Expected (fe)	40	40	40	40	40

Table Value = 13.28 χ^2 = 33.36 df = 4 P = 0.01

Interpretation : Table 25 shows that the value of χ^2 (calculated) is 33.36 which is greater than the table value and the result is significant at 0.01 level. Therefore, the statement is accepted.

Table 26 : There is no need to stop deforestation for timely monsoon and normal amount of rain

	SA	A	UN	DA	SDA
Observed (fo)	49	70	27	44	20
Expected (fe)	40	40	40	40	40

Table Value = 13.28 χ^2 = 39.16 df = 4 P = 0.01

Interpretation : Table 26 shows that the value of χ^2 (calculated) is 39.16 which is greater than the table value and the result is significant at 0.01 level. Therefore, the statement is accepted.

Table 27 : Value based education promotes healthy atmosphere in the institution

	SA	A	UN	DA	SDA
Observed (fo)	52	72	25	31	30
Expected (fe)	40	40	40	40	40

Table Value = 9.49 χ^2 = 39.36 df = 4 P = 0.05

Interpretation : Table 27 shows that the value of χ^2 (calculated) is 39.36 which is greater than the table value and the result is significant at 0.05 level. Therefore, the statement value based education promotes healthy competition and comparison among the institutions is accepted.

Table 28 : Spending money for Environmental Awareness is not necessary for a poor country like India

	SA	A	UN	DA	SDA
Observed (fo)	49	72	27	31	31
Expected (fe)	40	40	40	40	40

Table Value = 9.49 $\chi 2 =$ 35.92 df = 4 P = 0.01

Interpretation : Table 28 shows that the value of χ^2 (calculated) is 35.92 which is greater than the table value and the result is significant at 0.0 level. Therefore, the statement is accepted.

Table 29 : The main cause behind the crisis of environment is negligence and ignorance of common people by using it properly

	SA	A	UN	DA	SDA
Observed (fo)	50	72	25	31	32
Expected (fe)	40	40	40	40	40

Table Value = 13.28 $\chi^2 =$ 37.36 df = 4 P = 0.01

Interpretation : Table 29 shows that the value of χ^2 (calculated) is 37.36 which is greater than the table value and the result is significant at 0.05 level. Therefore, the statement is accepted.

Table 30 : School and the educators have become the societal agents should present the good attitude in shaping element of environmental awareness among the students

	SA	A	UN	DA	SDA
Observed (fo)	48	73	25	31	33
Expected (fe)	40	40	40	40	40

Table Value = 9.49 $\chi^2 =$ 37.72 df = 4 P = 0.05

Interpretation : Table 30 shows that the value of χ^2 (calculated) is 37.72 which is greater than the table value and the result is significant at 0.05 level. Therefore, the statement is accepted.

Table 31 : The Environmental balance is hampered due to the never-ending need of mankind for the name of urbanization and development

	SA	A	UN	DA	SDA
Observed (fo)	49	71	26	31	33
Expected (fe)	40	40	40	40	40

Table Value = 9.49 $\chi^2 =$ 34.22 df = 4 P = 0.05

Interpretation : Table 31 shows that the value of χ^2 (calculated) is 34.22 which is greater than the table value and the result is significant at 0.05 level. Therefore, the statement is accepted.

Table 32 : Environmental Awareness is not directly or indirectly balancing the ecosystem

	SA	A	UN	DA	SDA
Observed (fo)	49	7o	27	31	33
Expected (fe)	40	40	40	40	40

Table Value = 9.49 χ^2 = 32.02 df = 4 P = 0.05

Interpretation : Table 32 shows that the value of χ^2 (calculated) is 32.02 which is greater than the table value and the result is significant at 0.05 level.

Table 33 : Today many plants and animals have become endangered or extinct as the conservation of biodiversity have been neglected

	SA	A	UN	DA	SDA
Observed (fo)	40	72	25	40	33
Expected (fe)	40	40	40	40	40

Table Value = 9.49 χ^2 = 32.46 df = 4 P = 0.05

Interpretation : Table 33 shows that the value of χ^2 (calculated) is 32.46 which is greater than the table value and the result is significant at 0.05 level. Therefore, the statement is accepted.

Table 34 : Environmental awareness has no role in control of pollution caused by the smokes from industry, vehicle, wood or coal

	SA	A	UN	DA	SDA
Observed (fo)	45	70	26	30	29
Expected (fe)	40	40	40	40	40
Table Value = 9.49	χ^2 = 33.56		df = 4		P = 0.05

Interpretation : Table 34 shows that the value of χ^2 (calculated) is 40.43 which is greater than the table value and the result is significant at 0.05 level. Therefore, the statement is accepted.

Table 35 : Consciousness regarding sustainable agriculture is one of the most important factors of Environmental Awareness

	SA	A	UN	DA	SDA
Observed (fo)	60	61	25	31	33
Expected (fe)	40	40	40	40	40
Table Value = 9.49	χ^2 = 29.92		df = 4		P = 0.05

Interpretation : Table 35 shows that the value of χ^2 (calculated) is 43.33 which is greater than the table value and the result is significant at 0.05 level.

Table 36 : The modern technology of conservation of Environment is so costly that it is not possible in the poor country like India

	SA	A	UN	DA	SDA
Observed (fo)	55	72	25	31	27
Expected (fe)	40	40	40	40	40
Table Value = 9.49	χ^2 = 43.12		df = 4		P = 0.01

Interpretation : Table 36 shows that the value of χ^2 (calculated) is 43.12 which is greater than the table value and the result is significant at 0.01 level. Therefore, the statement is accepted.

Table 37 : The tranquility of environment, that include the stability of the ecosystem, contributes towards the healthy society with values is able to increase the productivity of the nation

	SA	A	UN	DA	SDA
Observed (fo)	51	70	25	30	34
Expected (fe)	40	40	40	40	40
Table Value = 9.49	χ^2 = 34.56		df = 4		P = 0.01

Interpretation : Table 37 shows that the value of χ^2 (calculated) is 34.56 which is greater than the table value and the result is significant at 0.01 level. Therefore, the statement is accepted.

Table 38 : The environmental awareness among the students can be viewed and related with the help of generating environmental values

	SA	A	UN	DA	SDA
Observed (fo)	46	65	32	31	36
Expected (fe)	40	40	40	40	40

Table Value = 9.49 χ^2 = 20.56 df = 4 P = 0.01

Interpretation : Table 38 shows that the value of χ^2 (calculated) is 20.56 which is greater than the table value and the result is significant at 0.05 level. Therefore, the statement is accepted.

Table 39 : Broader area of subject matter can be covered with elements of environment leading to awareness of Environment

	SA	A	UN	DA	SDA
Observed (fo)	49	72	25	31	33
Expected (fe)	40	40	40	40	40

Table Value = 13.28 χ^2 = 36.52 df = 4 P = 0.01

Interpretation : Table 39 shows that the value of χ^2 (calculated) is 36.52 which is greater than the table value and the result is significant at 0.01 level. Therefore, the statement is accepted.

Table 40 : I prefer to use posters, models and other activities in class regarding environmental awareness

	SA	A	UN	DA	SDA
Observed (fo)	49	72	25	31	33
Expected (fe)	40	40	40	40	40

Table Value = 13.28 χ^2 = 36.52 df = 4 P = 0.01

Interpretation : Table 40 shows that the value of χ^2 (calculated) is 36.52 which is greater than the table value and the result is significant at 0.01 level. Therefore, the statement is accepted.

Table 41 : Environmental Education should be activity centric

	SA	A	UN	DA	SDA
Observed (fo)	40	72	25	40	33
Expected (fe)	40	40	40	40	40

Table Value = 13.28 χ^2 = 32.46 df = 4 P = 0.01

Interpretation : Table 41 shows that the value of χ^2 (calculated) is 32.46which is greater than the table value and the result is significant at 0.01 level. Therefore, the statement is accepted.

Table 42 : Academic Achievement and Awareness towards environment have a close relationship in our society

	SA	A	UN	DA	SDA
Observed (fo)	49	72	25	31	33
Expected (fe)	40	40	40	40	40

Table Value = 13.28 $\chi 2 =$ 36.52 df = 4 P = 0.01

Interpretation : Table 42 shows that the value of χ^2 (calculated) is 36.52 which is greater than the table value and the result is significant at 0.01 level. Therefore, the statement is accepted.

Table 43 : Awareness activities in academic institutions may be enhanced by celebrating on the occasion of special days like Earth Day, Environment day etc.

	SA	A	UN	DA	SDA
Observed (fo)	43	65	37	26	49
Expected (fe)	40	40	40	40	40

Table Value = 13.28 $\chi^2 =$ 23.02 df = 4 P = 0.01

Interpretation : Table 43 shows that the value of χ^2 (calculated) is 23.02 which is greater than the table value and the result is significant at 0.01 level.

Table 44 : Only a limited students who understand the relation between environmental attitudes and environmentally responsible behaviours

	SA	A	UN	DA	SDA
Observed (fo)	51	56	29	29	35
Expected (fe)	40	40	40	40	40

Table Value = 13.28 χ^2 = 16.12 df = 4 P = 0.01

Interpretation : Table 44 shows that the value of χ^2 (calculated) is 16.12 which is greater than the table value and the result is significant at 0.01 level. Therefore, the statement is accepted,

Table 45 : To increase the number of essential plants nature study is very much important

	SA	A	UN	DA	SDA
Observed (fo)	49	72	25	31	33
Expected (fe)	40	40	40	40	40

Table Value = 13.28 χ^2 = 36.52 df = 4 P = 0.01

Interpretation : Table 45 shows that the value of χ^2 (calculated) is 36.52 which is greater than the table value and the result is significant at 0.01 level. Therefore, the statement is accepted.

Table 46 : Plantation of trees in educational Institutions and surroundings by the active participation of students and teachers are essential for generating environmental awareness

	SA	A	UN	DA	SDA
Observed (fo)	55	60	31	25	29
Expected (fe)	40	40	40	40	40

Table Value = 13.28 χ^2 = 26.32 df = 4 P = 0.01

Interpretation : Table 46 shows that the value of χ^2 (calculated) is 26.32 which is greater than the table value and the result is significant at 0.05 level. Therefore, the statement is accepted.

Table 47 : Facilitate development of education and training materials and aids in the formal education sector for environmental awareness

	SA	A	UN	DA	SDA
Observed (fo)	49	70	27	38	26
Expected (fe)	40	40	40	40	40

Table Value = 13.28 χ^2 = 33.76 df = 4 P = 0.01

Interpretation : Table 47 shows that the value of χ^2 (calculated) is 33.76 which is greater than the table value and the result is significant at 0.01 level. Therefore, the statement is accepted.

Table 48 : The application of teaching media by teachers should include the elements of environment

	SA	A	UN	DA	SDA
Observed (fo)	45	74	27	36	28
Expected (fe)	40	40	40	40	40

Table Value = 13.28 χ^2 = 37.76 df = 4 P = 0.01

Interpretation : Table 48 shows that the value of χ^2 (calculated) is 37.76 which is greater than the table value and the result is significant at 0.05 level. Therefore, the statement is accepted.

Table 49 : Spreading of environmental education, especially in the non-formal system among different sections of the society will be encouraged

	SA	A	UN	DA	SDA
Observed (fo)	51	70	30	29	30
Expected (fe)	40	40	40	40	40

Table Value = 13.28 χ^2 = 33.56 df = 4 P = 0.01

Interpretation : Table 49 shows that the value of χ^2 (calculated) is 33.56 which is greater than the table value and the result is significant at 0.01 level. Therefore, the statement is accepted.

Table 50 : The people should conscious when using chemicals for insecticides and for consumer goods in domestic purpose are getting mixed with air, soil, river and ocean water and thus hampering the Environment

	SA	A	UN	DA	SDA
Observed (fo)	32	70	27	48	33
Expected (fe)	40	40	40	40	40
Table Value = 13.28	χ^2 = 31.16		df = 4		P = 0.01

Interpretation : Table 50 shows that the value of χ^2 (calculated) is 31.16 which is greater than the table value and the result is significant at 0.01 level. Therefore, the statement is accepted.

Table 51 : Quality of human behavior with their surroundings among different social groups can enhance environmental awareness

	SA	A	UN	DA	SDA
Observed (fo)	40	68	38	28	36
Expected (fe)	40	40	40	40	40
Table Value = 13.28	χ^2 = 23.7		df = 4		P = 0.01

Interpretation : Table 51 shows that the value of χ^2 (calculated) is 23.7 which is greater than the table value and the result is significant at 0.01 level. Therefore, the statement is accepted.

Scatter Diagram 1 : Correlation between the Scores in Environmental Awareness of S. C. Group and Academic Achievement of the Students at their Secondary level

Scores Environmental Awareness	Academic Achievement Scores						
	350-399	400-499	450-499	500-549	500-599	600-649	Total
200 – 215	2	7	2	5	3	3	22
184 – 199	9	2		3	3	4	21
168-183	6		3	1	3	1	14
152-167		7	3	1			11
136-151		2	4	1	2	1	10
120-135	3	2	3	3	5	6	22
Total f	20	20	15	14	16	15	100

r = 0.385 (significant at the 0.05 level

Scatter Diagram 2 : Scatter Diagram Showing the Correlation between the Scores in Environmental Awareness of S. T. Group and Academic Achievement of the Students.

Scores	Academic Achievement Scores						
	350-399	400-499	450-499	500-549	500-599	600-649	Total
200 – 215	10	5	6	7	3	3	34
184 – 199	1	2	5	1	1		10
168-183	10	6	3	1			20
152-167	2	5	1	1		1	10
136-151	4	8	1		1		14
120-135	1	5	4	2			12
Total f	28	31	20	12	5	4	100

r = 0.76(significant at the 0.01 level)

Scatter Diagram 3 : Correlation between the Scores in Environmental Awareness of O. B. C . Group and Academic Achievement of the Students

Scores	Academic Achievement Scores						
	350-399	400-499	450-499	500-549	500-599	600-649	Total
200 – 215	4	3	1	6	2	2	18
184 – 199	12	7	6	7	4	4	20
168-183	7	6	3	1	1	2	18
152-167	7	5	1	1	2	1	15
136-151	4	2	1	2	1	2	10
120-135	5	2	2	2	2		11
Total f	40	19	13	15	7	6	100

r = 0.757 (significant at the 0.01 level)

Scatter Diagram 4 : Correlation between the Scores in Environmental Awareness of General Group and Academic Achievement of the Students

Scores	Academic Achievement Scores						
	350-399	400-499	450-499	500-549	500-599	600-649	Total
200 – 215	7	2	1	8	3	3	24
184 – 199	9	2	5	1	2	2	21
168-183	4	6	3	1	1		15
152-167	5	4	1	1		1	12
136-151	7	2	1	2	1		13
120-135	1	1	8	3	2		15
Total f	33	17	19	16	9	6	100

r = 0.614 (significant at the 0.01 level)

CHAPTER – V

FINDINGS AND CONCLUSION

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5.1 Introduction

Environmental education has been an integral part of our school education and also problems related to the environment are either integrated with different disciplines or introduced as a subject.

The terms environmental education and environmental awareness used interchange for the same meaning but there is significant difference in these two terms, environmental awareness may be defined as to help the social groups and individual to gain a variety of experiences in and acquire a basic understanding of environment and its associated problems.

Environmental awareness means to help social groups and individuals to acquire an awareness of and sensitivity to the total environment and its allied problems.

Environmental awareness may be defined to help the social groups and individuals to gain a variety of experiences in and acquire a basic understanding of environment and its associated problems.

Awareness describes a human and animal perception and cognitive reaction to a condition or event. Awareness does not necessarily imply understanding, just as ability to be conscious or feel or perceive.

Awareness focuses on an internal state, such as a visual feeling, or on external event by way of sensory perception. Awareness provides the raw material from which animals develop idea about their experience.

Four social Groups have been selected for conducting the study 1) S. C. 2) S. T. 3) O. B. C. 4) General for some selected areas in West Bengal.

Academic Achievement :

Academic Achievement has been measured of the subjects at their last final exam. Namely marks of tenth grade Secondary level Exam. has been considered as index of their Academic Achievement.

5.2 Objectives

The study was conducted with the following objectives :

1. To study the Environmental awareness and its influences on different social groups.
2. To study the different aspects of environmental awareness .
3. To determine the attitude of different social groups towards Environmental Awareness.
4. To understand environmental awareness towards conservation of biodiversity.
5. To prepare and standardize a suitable tool for assessment of Environmental awareness .
6. To study the impact of Environmental awareness on different social groups in relation to their Academic Achievement.

5.3 Significance of the Study

1. The study throws light on a very recent and most important dimensions regarding Environmental awareness among different social groups.
2. Through the study, different aspects of Environmental awareness are discussed for ensuring the relationship among them.
3. The awareness about Environmental is being accelerated on its proper application and attitude.
4. In this study, regarding environmental awareness with different types of people and groups in our society are also revealed.

5.4 Dimensions of the Study

1) Knowledge.

2) Attitude.

3) Involvement.

4) Values.

5.5 Tool

The Questionnaire constructed by the researcher was used as a tool in the study.

5.6 Sample and Population

The researcher has collected the samples for his research work from a rural and urban area. Out of 800 samples at 11^{th} grade students out of 16 schools selected purposively from four districts namely Nadia, North 24-Parganas, Hoogly and Murshidabad in West Bengal. From the total sample, 200 were S. C of whom 100 subjects were taken from urban area and 100 subjects from rural area. 200subjects were S.T. having 11^{th} grade of whom 100 were from urban area and 100 from rural area. 200 subjects were from O. B. C. of whom 100were from urban area and 100 from rural area and finally 200 subjects were from General category.

5.7 Delimitation of the Study

The study was delimited in terms of samples, content and tools. The delimitations are as follows :

The study was conducted on selected social groups only. Four groups were selected randomly. These are – Four social Groups have been selected for conducting the study 1) S. C. 2) S. T 3) O. B. C. 4) General

5.8 Findings of the Study

5.8.1 Findings I : Social Stratification and Environmental Awareness from Hypothetical Consideration (H_1 to H_{32})

1. Hypothesis – 1 :

There is no significant mean difference of schedule caste urban and rural Students in respect to their knowledge towards Environmental Awareness.

Table – I

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	168.26	16.28	100	142.40	8.50	198	14.13	**

Therefore, the obtained t value is 14.13and the degree of freedom for use is 99 + 99 or 198. This is a two tailed test. Obtained t-value is highly significant at 0.01 level. Therefore the hypothesis is rejected.

2. Hypothesis – 2 :

There is no significant mean difference of schedule caste urban and rural Students in respect to their attitude towards Environmental Awareness.

Table – II

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	189.56	6.08	100	178.88	7.46	198	11.24	**

Hence obtained t value is 11.04 and the degrees of freedom for use in testing the t value is 100 + 100 – 2 = 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

Hypothesis – 3 :

There is no significant mean difference of schedule caste urban and rural Students in respect to their involvement towards Environmental Awareness.

Table – III

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	173.60	6.87	100	168.76	5.20	198	5.66	**

Hence, the obtained t value is 5.66 and the degrees of freedom for use in testing the t value is 100 + 100 – 2 = 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

Hypothesis – 4 :

There is no significant mean difference of schedule caste urban and rural Students in respect to their values towards Environmental Awareness.

Table – IV

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	145.20	4.55	100	143.40	4.46	198	2.85	**

Hence, the obtained t value is 2.85 and the degrees of freedom for use in testing the t value is 198. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

5. Hypothesis – 5 :

There is no significant mean difference of schedule tribe urban and rural Students in respect to their knowledge towards Environmental Awareness.

Table – V

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	175.26	16.28	100	152.40	8.50	198	12.49	**

Therefore, the obtained t value is 12.49 and the degree of freedom for use is 198. This is a two tailed test. For 198 df, the t critical value at 0.01 level is 2.60. Hence the obtained t-value is highly significant at 0.01 level. Therefore the hypothesis is rejected.

6. Hypothesis – 6 :

There is no significant mean difference of schedule tribe urban and rural Students in respect to their attitude towards Environmental Awareness.

Table – VI

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	181.52	6.11	100	158.88	7.23	198	24.08	**

Hence obtained t value is 24.08 and the degrees of freedom for use in testing the t value is 100 + 100 – 2 = 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

7. Hypothesis – 7 :

There is no significant mean difference of schedule tribe urban and rural Students in respect to their involvement towards Environmental Awareness.

Table – VII

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	177.60	5.98	100	148.76	7.00	198	31.69	**

Hence, the obtained t value is 31.69and the degrees of freedom for use in testing the t value is 100 + 100 – 2 = 198. For 48 df the t critical value for two tailed test at 0.05 level is 2.01. Therefore, the obtained t value is significant at 0.05 level and hence the hypothesis is rejected.

8. Hypothesis – 8 :

There is no significant mean difference of schedule tribe urban and rural Students in respect to their values towards Environmental Awareness.

Table – VIII

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	156.20	5.65	100	134.40	6.63	198	25.05	**

Hence, the obtained t value is 25.05 and the degrees of freedom for use in testing the t value is 198. For 198 degrees of freedom the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

9. Hypothesis – 9 :

There is no significant mean difference of OBC urban and rural Students in respect to their knowledge towards Environmental Awareness.

Table – IX

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	175.56	6.01	100	177.88	7.23	198	2.47	**

Hence obtained t value is 2.47 and the degrees of freedom for use in testing the t value is 100 + 100 – 2 = 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is not significant at 0.01 level and hence the hypothesis is retained.

10. Hypothesis – 10 :

There is no significant mean difference of OBC urban and rural Students in respect to their attitude towards Environmental Awareness.

Table – X

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	186.56	6.20	100	169.58	7.47	198	16.49	**

Hence obtained t value is 16.49and the degrees of freedom for use in testing the t value is 100 + 100 – 2 = 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

11. Hypothesis – 11 :

There is no significant mean difference of OBC urban and rural Students in respect to their involvement towards Environmental Awareness.

Table – XI

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	189.66	6.25	100	188.55	7.67	198	1.17	**

Hence obtained t value is 11.17 and the degrees of freedom for use in testing the t value is 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is not significant at 0.01 level and hence the hypothesis is retained.

12. Hypothesis – 12 :

There is no significant mean difference of OBC urban and rural Students in respect to their values towards Environmental Awareness.

Table – XII

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	189.56	6.25	100	178.88	7.68	198	10.78	**

Hence obtained t value is 10.78 and the degrees of freedom for use in testing the t value is 100 + 100 – 2 = 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

13. Hypothesis – 13 :

There is no significant mean difference of General urban and rural Students in respect to their knowledge towards Environmental Awareness.

Table – XIII

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	179.56	6.08	100	180.88	7.46	198	1.38	**

Hence obtained t value is 1.38 and the degrees of freedom for use in testing the t value is 100 + 100 – 2 = 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is not significant at 0.01 level and hence the hypothesis is retained.

14. Hypothesis –14 :

There is no significant mean difference of General urban and rural Students in respect to their attitude towards Environmental Awareness.

Table – XIV

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	165.56	5.84	100	158.81	7.23	198	7.33	**

Hence obtained t value is 7.33 and the degrees of freedom for use in testing the t value is 100 + 100 – 2 = 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

15. Hypothesis – 15 :

There is no significant mean difference of General urban and rural Students in respect to their involvement towards Environmental Awareness.

Table – XV

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	181.56	6.11	100	166.88	7.41	198	15.29	**

Hence obtained t value is 15.29 and the degrees of freedom for use in testing the t value is 100 + 100 – 2 = 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

16. Hypothesis – 16 :

There is no significant mean difference of General urban and rural Students in respect to their values towards Environmental Awareness.

Table – XVI

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	169.44	5.91	100	156.92	7.19	198	13.60	**

Hence obtained t value is 13.60 and the degrees of freedom for use in testing the t value is 100+ 100– 2 = 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

17. Hypothesis – 17 :

There is no significant mean difference of Schedule Caste boys and girls in respect to their knowledge towards Environmental Awareness.

Table – XVII

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	177.56	6.08	100	168.88	7.46	198	9.04	**

Hence obtained t value is 9.04 and the degrees of freedom for use in testing the t value is 100 + 100 – 2 = 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

18. Hypothesis – 18 :

There is no significant mean difference of Schedule Caste boys and girls in respect to their attitude towards Environmental Awareness.

Table – XVIII

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	169.56	6.08	100	158.88	7.46	198	11.12	**

Hence obtained t value is 11.12 and the degrees of freedom for use in testing the t value is 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

19. Hypothesis – 19 :

There is no significant mean difference of Schedule Caste boys and girls in respect to their involvement towards Environmental Awareness.

Table – XIX

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	177.16	6.04	100	165.78	7.39	198	11.98	**

Hence obtained t value is 11.98 and the degrees of freedom for use in testing the t value is 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

20. Hypothesis – 20 :

There is no significant mean difference of Schedule Caste boys and girls in respect to their values towards Environmental Awareness.

Table – XX

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	176.16	6.04	100	165.78	7.39	198	10.92	**

Hence obtained t value is 10.92 and the degrees of freedom for use in testing the t value is 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

Hypothesis – 21 :

There is no significant mean difference of Schedule Tribe boys and girls in respect to their knowledge towards Environmental Awareness.

Table – XXI

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	179.56	6.08	100	168.88	7.46	198	9.72	**

Hence obtained t value is 9.72 and the degrees of freedom for use in testing the t value is 100 + 100 – 2 = 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

Hypothesis – 22 :

There is no significant mean difference of Schedule Tribe boys and girls in respect to their attitude towards Environmental Awareness.

Table – XXII

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	159.56	6.08	100	168.88	7.46	198	9.70	**

Hence obtained t value is 9.70 and the degrees of freedom for use in testing the t value is 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

Hypothesis – 23 :

There is no significant mean difference of schedule tribe boys and girls in respect to their involvement towards Environmental Awareness.

Table – XXIII

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	167.16	6.04	100	155.78	7.39	198	11.98	**

Hence obtained t value is 11.98 and the degrees of freedom for use in testing the t value is 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

Hypothesis – 24 :

There is no significant mean difference of schedule tribe boys and girls in respect to their values towards Environmental Awareness.

Table – XXIV

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	171.16	6.04	100	175.78	7.39	198	4.86	**

Hence obtained t value is 4.86 and the degrees of freedom for use in testing the t value is 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

Hypothesis – 25 :

There is no significant mean difference of OBC boys and girls in respect to their knowledge towards Environmental Awareness.

Table – XXV

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	145.36	6.08	100	158.88	7.46	198	14.08	**

Hence obtained t value is 11.04 and the degrees of freedom for use in testing the t value is 100 + 100 – 2 = 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

Hypothesis – 26 :

There is no significant mean difference of OBC boys and girls in respect to their attitude towards Environmental Awareness.

Table – XXVI

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	179.56	6.08	100	168.88	7.46	198	11.12	**

Hence obtained t value is 11.12 and the degrees of freedom for use in testing the t value is 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

Hypothesis – 27 :

There is no significant mean difference of OBC boys and girls in respect to their involvement towards Environmental Awareness.

Table – XXVII

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	166.16	6.04	100	165.78	7.39	198	0.40	**

Hence obtained t value is 0.40 and the degrees of freedom for use in testing the t value is 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is not significant at 0.01 level and hence the hypothesis is rejected.

Hypothesis – 28

There is no significant mean difference of OBC boys and girls in respect to their values towards Environmental Awareness.

Table – XXVIII

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	167.16	6.04	100	155.78	7.39	198	11.98	**

Hence obtained t value is 11.98 and the degrees of freedom for use in testing the t value is 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

Hypothesis – 29 :

There is no significant mean difference of General boys and girls in respect to their knowledge towards Environmental Awareness.

Table – XXIX

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	181.56	6.08	100	169.88	7.46	198	12.16	**

Hence obtained t value is 12.16 and the degrees of freedom for use in testing the t value is 100 + 100 – 2 = 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

Hypothesis – 30 :

There is no significant mean difference of General boys and girls in respect to their attitude towards Environmental Awareness.

Table – XXX

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	174.56	6.08	100	168.88	7.46	198	5.91	**

Hence obtained t value is 5.91and the degrees of freedom for use in testing the t value is 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

Hypothesis – 31 :

There is no significant mean difference of General boys and girls in respect to their involvement towards Environmental Awareness.

Table – XXXI

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	176.16	6.04	100	155.78	7.39	198	21.24	**

Hence obtained t value is 21.24 and the degrees of freedom for use in testing the t value is 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

Hypothesis – 32 :

There is no significant mean difference of General boys and girls in respect to their values towards Environmental Awareness.

Table – XXXII

N_1	M_1	SD_1	N_2	M_2	SD_2	df	t-value	Significance
100	170.16	6.04	100	165.78	7.39	198	4.61	**

Hence obtained t value is 4.61 and the degrees of freedom for use in testing the t value is 198. For 198 df the t critical value for two tailed test at 0.01 level is 2.60. Therefore, the obtained t value is significant at 0.01 level and hence the hypothesis is rejected.

5.8.2 Findings II (From Chi Square Testing) : Measurement of Environmental Awareness Dimension-wise through Nonparametric Statistics

Findings 1 : It is observed that Promotion of environmental education through awareness is a social need.

Findings 2 : India should take a great role in conservation of Environment due to irregular and unplanned development in rural and urban areas.

Findings 3 : Our animals and plants can be preserved only through conservation of Environment.

Findings 4 : Overall knowledge about Environment should be a part of education.

Findings 5 : Backward classes have lower environmental awareness but due to lack of development environment is well protected .

Findings 6 : The chemicals used to protect the crop from insect are not harmful for other animals of the field, like birds, frog, earthworm etc.

Findings 7 : Sympathetic attitudes towards environment should be developed among general people.

Findings 8 : It is our responsibility to participate in different programmes of environmental awareness

Findings 9 : Achievement and awareness are keenly related on the basis environmental values.

Findings 10 : For the lack of favorable environment and to protect diversity necessary arrangements to be created.

Findings 11 : Backward classes have greater awareness regarding environment as their life pattern is very much linked and dependent on Environment.

Findings 12 : Lack of awareness about conservation has caused extinction of golden toad, rhinoceros, different types of birds, iguana etc loosing Biodiversity.

Findings 13 : Cutting few trees if required is not harmful statistically accepted but may cause a great disaster in future generation.

Findings 14 : Wild life conservation, creation of national park and other preservative measures are not necessary for maintaining Environmental Awareness accepted in calculation.

Findings 15 : It is inferred from the statistics that Human values can protect environment.

Findings 16 : Tribal areas are more environment friendly reveals from the study.

Findings 17 : Conservation of plant ecology and creation of national plant parks are necessary for conservation of ecological balance.

Findings 18 : Natural influence and contribution in curriculum are influencing for generating environmental awareness.

Findings 19 : Education system should follow the environmental objectives effectively in implementing curriculum.

Findings 20 : The main source to protect biodiversity is Environmental Awareness.

Findings 21 : The element of awareness is not sufficient without knowledge, understanding, the change of attitude and physical participation.

Findings 22 : School Curriculum has focused towards the aspects of values and human's behavior with their surrounding which had been taught through their subjects and co- curricular activities.

Findings 23 : Plantation is an urgent need for protecting and awareness generating programme.

Findings 24 : Environment knowledge can enhance awareness.

Findings 25 : There is no need to stop deforestation for timely monsoon and normal amount of rain.

Findings 26 : Value based education promotes healthy atmosphere in the institution.

Findings 27 : Spending money for Environmental Awareness is not necessary for a poor country like India.

Findings 28 : The main cause behind the crisis of environment is negligence and ignorance of common people by using it properly.

Findings 29 : School and the educators have become the societal agents should present the good attitude in shaping element of environmental awareness among the students.

Findings 30 : The Environmental balance is hampered due to the never-ending need of mankind for the name of urbanization and development.

Findings 31 : Environmental Awareness is not directly or indirectly balancing the ecosystem.

Findings 32 : Today many plants and animals have become endangered or extinct as the conservation of biodiversity have been neglected.

Findings 33 : Environmental awareness has no role in control of pollution caused by the smokes from industry, vehicle, wood or coal.

Findings 34 : Sustainable agriculture is one of the most important factor of Environmental Awareness.

Findings 35 : The modern technology of conservation of Environment is so costly that it is not possible in the poor country like India.

Findings 36 : The tranquility of environment, that include the stability of the ecosystem, contributes towards the healthy society with values is able to increase the productivity of the nation.

Findings 37 : The environmental awareness among the students can be viewed and related with the help of generating environmental values.

Findings 38 : Broader area of subject matter can be covered for developing awareness of Environment.

Findings 39 : I prefer to use posters, models, or actual practice and other activities in class regarding environmental awareness.

Findings 40 : Environmental Education should be activity centric

Findings 41 : Academic Achievement and Awareness towards environment have a close relationship in our society.

Findings 42 : Awareness activities in academic institutions may be enhanced by celebrating on the occasion of special days like Earth Day, Environment day etc.

Findings 43 : Only a limited students who understand the relation between environmental attitudes and environmentally responsible behaviours and the result is significant at 0.0 level. Therefore, the statement is accepted,

Findings 44 : To increase the number of essential plants nature study is very much important.

Findings 45 : Plantation of trees in educational Institutions and surroundings by the active participation of students and teachers are essential for generating environmental Awareness.

Findings 46 : Facilitate development of education and training materials and aids in the formal education sector for environmental awareness.

Findings 47 : The application of teaching media by teachers should include the elements of environment.

Findings 48 : Spreading of environmental education, especially in the non-formal system among different sections of the society will be encouraged.

Findings 49 : The people should conscious when using chemicals for insecticides and for consumer goods in domestic purpose are getting mixed with air, soil, river and ocean water and thus hampering the Environment.

Findings 50 : Promotion of environmental awareness among different social groups is our social responsibility.

5.8.3 Findings III : From Scatter Diagram showing the Correlation between the Scores in Environmental Awareness and Academic Achievement

Findings 1 : Scatter Diagram showing the Correlation between the Scores in Environmental Awareness of S. C. Group and Academic Achievement of the Students at their Secondary level. $r = 0.385$ (significant at the 0.05 level).

Findings 2 : Scatter Diagram Showing the Correlation between the Scores in Environmental Awareness of S. T. Group and Academic Achievement of the Students. r = 0.76 (significant at the 0.01 level)

Findings 3 : Scatter Diagram Showing the Correlation between the Scores in Environmental Awareness of O. B. C. Group and Academic Achievement of the Students. r = 0.757 (significant at the 0.01 level)

Findings 4 : Scatter Diagram Showing the Correlation between the Scores in Environmental Awareness of General Group and Academic Achievement of the Students. r = 0.614 (significant at the 0.01 level)

5.9 Conclusion

The study of Environmental Awareness has significantly important for balancing awareness and education in respect to different selected social groups and gender difference too. The study of Environmental Awareness should be included in the curriculum of secondary and other level of education in respect to knowledge, attitude, involvement and values about the present educational structure. Therefore elements of environment will have to have included formally and non formally in our education system as reflected in our studies. As majority of the people of our country are indifferent and a great percentage having illiterate about environment and have little scope of having formal education, so to their knowledge and awareness of environment including its application should be imparted through education and other sources for its development and productivity too.

BIBLIOGRAPHY

BIBLIOGRAPHY

Ali, A. R. M. (2001). "Ilmu Pendidikan DPM: Pendidikan di Malaysia dan Psikologi Pendidikan", Utusan Publications & Distributors Sdn. Bhd., Selangor.

Arluke, A. & Sanders, C. (1996). Regarding Animals. Temple University Press. pp. p132. ISBN 1-56639-441-4.

Bakar A. J. (1994). "Malaysia: Policy, Laws, and Responses to Environmental Issues. In Malaysian Development Experience: Change and Challenges", INTAN, Kuala Lumpur.

Baylis, J. & Smith, S. (2005). The Globalization of World Politics (3rd ed). Oxford. Oxford University Press. P.454-455

BC Stats (2006) Ministry of Labour and Citizen's Services. http://www.bcstats.gov.bc.ca/

BCAC (2006) Canada-British Columbia Environmental Farm Plan. BC Agriculture Council. http://www.bcac.bc.ca/efp_programs.htm

Best, J. W. and Kahn, J. V. : Research in Education. New Delhi – Practice Hall of India Pvt. Ltd.

Bier, D. and Benson, R. H. (1991). Biotechnology Patent Protection Act. "University of Denver : Law review, Vol. 68, 1991, pp. 173 – 75.

Botzler, R. G. & Armstrong, S. J. (1998). "Environmental Ethics: Divergence and Convergence", 2nd Ed., McGraw-Hill, New York.

Braun, B. & Castree, N. (1998). Remaking Reality: Nature at the Millennium. Routledge. pp. p92. ISBN 0-415-14493-0. [sic]

British Columbia Ministry of Environment (2002). Interim Wildlife Guidelines for Backcountry Recreation in British Columbia. http://www.env.gov.bc.ca/wld/comrec/crecintro.html

British Columbia Ministry of Environment (2006). Wildlife Guidelines for Commercial Back Country Recreation in British Columbia http://www.env.gov.bc.ca/wld/comrec/crecintro.html

British Columbia Ministry of Forests (2004) The State of British Columbia's Forests. 82 pages. http://www.for.gov.bc.ca/hfp/sof/

British Columbia Ministry of Tourism, Sport and the Arts (2006). Table of Commercial Recreation Tenures. http://www.tsa.gov.bc.ca /resorts_rec /tenure/commercialrecreation/tenures_region.pdf

British Columbia Ministry of Water Land and Air Protection (2002) Environmental Trends in British Columbia. 67 pages. www.env.gov.bc.ca/soerpt/pdf/ET2002Oct221.pdf

British Columbia Ministry of Water Land and Air Protection (2003) The State of Rivers and Watersheds in British Columbia. 53 pages. Draft Report.

Brueggemeier, F. J., Cioc, M. & Zeller, T. eds, (2006). "How Green Were the Nazis?: Nature, Environment, and Nation in the Third Reich" Wilko Graf von Hardenberg, H-Environment, H-Net Reviews.

Burrill and Kenneth B. Lee (1991). Jr. Biotech '92 : Protnise to Reality, Washington, D. C. Ernst and Toung, pp. 5 – 10.

Byron D. W., & Sussman, G. eds. (2010). White House Politics and the Environment: Franklin D. Roosevelt to George W. Bush (Texas A&M University Press; evaluates how 12 presidents helped or hindered the cause of environmental protection.

Caldecott, J. (1988). Hunting and Wildlife Management in Sarawak. Gland, Switzerland : World Conservation Union.

Campbell, I. (2004). Toward integrated freshwater policies for Canada's future. Government of Canada Policy Research Initiative. Vol 6, No. 4. http://policyresearch.gc.ca/page.asp?pagenm=v6n4_art_02

Cat Lincoln (Spring 2009). "Light, Dark and Bright Green Environmentalism". Green Daily. Retrieved 2009-11-02.

Centre for Plant Conservation (1988.). C. P. C. Endangerment Survey, Jamaica Plain, Mass.

Chakraborty, K. (1992). Man and Nature, Human Heritage under Siege. The Statesman, pp. 80 – 82.

Chattopadhyay, Mukhopadhyaya, Dutta, Higher Secondary Biology. Calcutta : Book Syndicate Pvt. Ltd., p. 78.

Ciruna, K., Meyerson, L. A., Gutierrez, A. T. & Watson, E. (2004). Information Document on the Ecological and Socio-Economic Impacts of Invasive Alien Species on Inland Water Ecosystems : A Report to the Convention on Biological Diversity. http://www.biodiv.org/doc/meetings/sbstta /sbstta-10/information/sbstta-10-info-04-en.doc

City of Vancouver (2003) West Coast City Facts. Vancouver City Planning Department. http://vancouver.ca/commsvcs/cityplans/4CitiesFacts03.pdf

Cummins, N. P. (2012). "An Evolutionary Perspective on the Relationship Between Humans and Their Surroundings: Geoengineering, the Purpose of Life & the Nature of the Universe". Cranmore Publications.

Cunningham, W. P. et al. (1998). Environmental encyclopedia. Gale Research. ISBN 0-8103-9314-X.

Curriculum Development Centre, Ministry of Education Malaysia (1990). "Modular Training of the Integrated Secondary School Curriculum (ISSC)" (translated). Dewan Bahasa dan Pustaka, Kuala Lumpur.

Das, N. (2001). A study on social and environmental impact of TV and radio programmes, Center of Media Studies, New Delhi

Das, R. C., Baral, J. K., Sahu, N. C., Misras, M. K. (1998). The Environmental Divide - The Dilemma of Developing Countries

de Steiguer & Edward J. (2006). The Origins of Modern Environmental Thought. The University of Arizona Press. Tucson. pp. 246.

DeGregori, T. R. (2002). Bountiful Harvest : Technology, Food Safety, and the Environment. Cato Institute. pp. p153. ISBN 1-930865-31-7.

Desh, B. & Dyal, R. (Eds.) (1999): Environmental Education for a Sustainable Future, Indian Environmental Society, New Delhi

Didham, R. K. et al (2005) Are Invasive Species the Drivers of Ecological Change? Trends in Ecology and Evolution 20(9): 470-474

Edwards, A. L. (1969). Techniques of Attitudes Scales Constitution. Bombay : Vakils, Feffer and Simons Ltd.

Ehrlich, P. R. & Wilson, E. O. (1991). Biodiversity Studies, Science and Policy Science, Vol. 253, pp. 758 – 760.

Environment Canada (2004) Municipal Water Use Statistics. http://www.ec.gc.ca/Water/en/info/pubs/sss/e_mun2001.htm#3

Environment Canada (2005) Energy Supply and Demand. http://www.statcan.ca /Daily/English/051012/d051012a.htm

Evangelical Climate Initiative (2010). "Climate Change: An Evangelical Call to Action". christiansandclimate.org.

Fleming, J. R., Knorr, B. R. "History of the Clean Air Act". American Meteorological Society. Retrieved 2006-02-14.

Fraser Basin Council (2001) Nutrient Management Planning Strategies for the Fraser Valley.

Fraser Basin Council (2004). State of the Fraser Basin Report. 28 pages. www.fraserbasin.bc.ca/publications/2004-Snapshot2.pdf

Garrett, H. E., Statistics in Psychology and Education – Bombay : Vakils, Feffer and Simons Ltd.

Gayton, D. (2005) Native and Non-native Plant Species on Grazed Grasslands of British Columbia's Southern Interior. Journal of Ecosystems and Management Vol. 5, number 1. 9 pages. http://www.forrex.org /publications/jem/ISS25/vol5_no1_art6.pdf

Gayton, D. F. (2007). Major Impacts to Biodiversity (Excluding Climate Change).

Ghatak, A. R. (1992). What on earth is biodiversity. The Statesman, Friday.

Gibson, D (2003). Environmentalism : Ideology and Power. Nova Science Pub Inc.

Gottlieb, R. (2005). Forcing the Spring : The Transformation of the American Environmental Movement.

Gould, P. C. (1988). Early Green Politics, Brighton, Harvester Press, pp. 15-19,

Government of British Columbia (2007). Speech from the Throne, 38th Parliament. H:\biodiversity\Speech from the Throne 3rd Session 38th Parliament Legislative Assembly of British Columbia.htm

Haddow, C. and Muir, R. & Meadow V. Case Study http://dev. stewardshipcanada.ca/caseStudies/NSCcs_builder.asp?request_no=100

Hall, J. "History Of The Environmental Movement". Retrieved 2006-11-25.

Harre, R. and Lamb, R. (1999). The Encyclopaedia Dictionary of Psychology. London : The Macmillan and Co. p. 83.

Harris, P. G. (2006). "Environmental Perspectives and Behavior in China: Synopsis and Bibliography", Environment and Behavior, 38:1.

Hartmut M. & Hanauske-Abel (1996). Not a slippery slope or sudden subversion: German medicine and National Socialism in 1933, BMJ pp. 1453–1463.

Henry E. Garrett. Statistics in Psychology and Education. Bombay : Vakils, Feffer and Simons Ltd.

Hirner, J. (2006). Relationships between Trout Stocking and Amphibians in British Columbia's Southern Interior Lakes. M. Sc. thesis, Simon Fraser Univ. Vancouver.

Huston, M. A. (1991). Biological diversity and human resources. Impact of Science on Society. No. 166. pp. 121 – 130.

Iverson, K. & Cadrin, C. (2003) Sensitive Ecosystems Inventory: Central Okanagan 2000–2001 Volume 1: Methodology, Ecological Descriptions, Results and Conservation Tools. Canadian Wildlife Service, Pacific and Yukon Region. p. 238.

Jaus, H. (1982). "The effect of environmental education instruction on children's attitudes in elementary school students", Science Education 66:5, pp. 690–692.

Jeffrey, A., Mc Neely, Kenton R. Miller, Walter V. Reid, Russel A. Mitter Meier and Timothy B. Werner (1990). Conserving the Worlds Biological Diversity. Gland, Switzerland and Washington D. C. World Conservation Union, World Resources Institute, Conservation International, World Wildlife Fund, and World Bank, pp. 140–149.

Jeffrey, A., Mc. Neely, Kentor B. Miller, Walter V. Red., D. C. Russell, A. Milter & Timothy B. Werner. Strategies for Conserving Biodiversity. Environment. April, 1990. pp. 16 – 20, 36 – 40.

Keith M. Woodhouse (2009). "The Politics of Ecology: Environmentalism and Liberalism in the 1960s," Journal for the Study of Radicalism, Volume 2, Number 2, pp. 53–84

Keow, C. L. (2008). "Philosophy and Education in Malaysia", Kumpulan Budiman Sdn. Bhd., Selangor.

Kitchen, M. (2006). A History of Modern Germany, 1800-2000. Blackwell Publishing. pp. p278. ISBN 1-4051-0040-0.

Knapp, R. A. et al (2000) Resistance and Resilience of Alpine Lake Fauna to Fish Introductions. Ecological Monographs 71(3): 401-421.

Kothari, A. (2004 – 2006). Report on Conserving life – Implication of the Biodiversity Convention for India : : West Bengal Biodiversity Board.

Kovarik, W. "Environmental History Timeline". Retrieved 2006-11-25.

Kridel, C. (2010). Encyclopedia of Curriculum Studies. Sage Publications, Inc. p. 341. ISBN 978-1-4129-5883-7. Retrieved 2010-04-16.

Madruga, K., Batalha da Silveira, C. F. (2003). "Can teenagers educate children concerning environmental issues?" Journal of Cleaner Production 11, pp. 519–525.

Mak Soon Sang (2000). "Ilmu Pendidikan untuk KPLI", Kuala Lumpur.

Martell, L. (1994) "Ecology and Society: An Introduction". Polity Press.

McCormick, J. (1995). The Global Environmental Movement. John Wiley. London. pp. 312.

McPhee, M. (2000). Sensitive Ecosystems Inventory: East Vancouver Island and Gulf Islands 1993 – 1997 Volume 2: Conservation Manual. Canadian Wildlife Service, Pacific and Yukon Region. 284 p.

Menard, M. (2003) Canada, A Big Energy Consumer: A Regional Perspective. Statistics Canada, Ottawa

Ministry of Energy, Mines and Petroleum (2006) Coal Production and Values. http://www.em.gov.bc.ca/mining/miningstats/31prodvalcoal.htm.

Monroe P., International Encyclopaedia of Education, New York : Torrento, pp. 80.

National Council of Educational Research and Training (1997): Fifth Survey of educational research 1988-92, Vol. I

Negi, S. S. Biodiversity and its Conservation in India : National Biodiversity Strategy and Action Plan : India.

Nelson, I. (1992). Nature and Resources : Vol. 28, No. 2, pp. 3 – 8.

Newmaster, S. G. et al. (2003). Patterns of Bryophyte Diversity in Humid Coastal and Inland Cedar. Hemlock Forests of British Columbia. Environmental Reviews. Ottawa: 2003.Vol.11 pg. 159.

Özden, M. (2008). "Environmental Awareness and Attitudes of Student Teachers: An Empirical Research", International Research in Geographical and Environmental Education, 17:1.

Olsen, J. (2007). "How Green Were the Nazis? Nature, Environment, and Nation in the Third Reich (review)" Technology and Culture – Volume 48, Number 1, pp. 207–208

Palmer, M. & Finlay, V. (2003). Faith In Conservation, World Bank Publications (downloadable PDF retrieved 12-06-12.

Pant, S., Rogers, E. M. & Singhal, A. (2000). Environmental Activism Through an Entertainment-Education Radio Soap Opera in India, p. 173-177, in Open, M., Hamacher, W. (Eds.), Peter Lang Publishers, Frankfurt, Germany

Pedersen, L. (2003). Annual Allowable Cuts in British Columbia: The Agony and the Ecstasy. Address by Chief Forester. 24 pages. http://www.for.gov.bc.ca/hts/pubs/jubilee_ubc.pdf.

Peters R. L. & Lovejoy, T. E. Global Warming and Biological diversity. New Haven : Yale University Press. pp. 50 – 52.

Peters, R. L. & J. P. Myers (1992). Preserving Biodiversity in a changing climate. Winter, pp. 66 – 71.

Proctor, R. (1999). The Nazi War on Cancer. Princeton University Press. pp. p5. ISBN 0-691-07051-2.

Pryce, B., P. et. al. (2006). Okanagan Ecoregional Assessment., Appendix 15. Nature Conservancy of Canada, Victoria, British Columbia.

Rachel, C.(1962).Silent Spring. Boston:Houghton Mifflin.ISBN 0-8093-2218-8.

Rahman A. A. & Zakaria K., (1987). "Falsafah dan Konsep Pendidikan", Penerbit Fajar Bakti, Kuala Lumpur.

Raines, L. J. (1992). Protecting Biotechnology's Pioneers, Issues in Science and Technology. pp. 33 – 39.

Rajimwale, I. Man Versus Ecology. New Delhi : Peoples Publishing House, pp. 1 – 9.

Rao, R. R. Biodiversity in India : Techniques of Attitude Scales Construction : Edward A. L. Vakils, Feffer and Simons Ltd.

Reid, W. V. and Miller, K. R. (1989). Keeping Options Alive : The Scientific Basis for Conserving Biodiversity. Washington D. C. World Resources Institute, pp. 21 – 31.

Riosser, P. G., Lubehenco, J., Levin, S. A. (1991). "Biological Research Priorities – A Sustainable Biosphere. Bioscience, Vol. 41, pp. 625– 627.

Ronald Bailey (2002). "Debunking Green Myths". Reason.com. Retrieved 2012-06-20.

Rossel, S. (1992). The Holocaust: The World and the Jews, 1933-1945. Behrman House, Inc. pp. p79. ISBN 0-87441-526-8.

Salleh L. M., (2002). "Perancangan Pendidikan Peringkat Sekolah dan IPT", Kuala Lumpur. 58 Aminuddin Hassan, Hafizan Juahir and Nur Syuhada Jamaludin

Sanera, M. (1998). "Environmental education: Promise and performance", Canadian Journal of Environmental Education 3:3, pp. 9–26.

Sanyal, Chatterjee and Dutta : Higher Secondary Biology. Calcutta : . 84.

Schneider S. H. (1999). Are We Entering The Greenhouse Century ? San Francisco : Sierra Club Books, pp. 75 – 79.

Sham Sani et. al. (1994). "Alam Sekitar dan Pengurusannya di Malaysia" Working Group on Urban Ecosystems, Malaysian National MAB Committee and MAB UNESCO.

Sharifah Alwiyah AlSagoff, (1992). "Falsafah Pendidikan", Longman Malaysia Sdn. Bhd., Selangor.

Sinsel, J. (2010). "Earth Day Activities". Lesson Planet. Retrieved 2010-04-16.

Smart Growth BC (2004) BC Sprawl Report. 91 pages http://www.smartgrowth.bc.ca/downloads/Sprawl2004.pdf

Sobrig, O. T. (1991). The origin and function of biodiversity environment, pp. 1 – 20, 34 – 38.

Stanton-Kennedy, T. (2005). Calculating Impermeable Surface Area in the Prince George "Bowl." UNBC Geography 300 Project. http://www.gis.unbc.ca/courses/geog300/projects/2005/stanton/index.php

Stroup, R. L. (2008). Free-Market Environmentalism. The Library of Economics and Liberty. Archived from the original on 2008.

Taylor, A. (1999) Ecological Tax Reform: Estimated Environmental and Employment Effects in British Columbia. Simon Fraser University. 100 pages. http://www.rem.sfu.ca/pdf/taylor.pdf

Thapa, B. (1999). "Environmentalism: The Relation of Environmental Attitudes and Environmentally Responsible Behaviors among Undergraduate Students", Bulletin of Science Technology Society 19:5.

Urbinato, D. (1994). "London's Historic 'Pea-Soupers'". United States Environmental Protection Agency. Retrieved 2006-08-02.

Verweij, M. & Thompson, M. (eds), (2006). Clumsy Solutions for a Complex World: Governance, Politics and Plural Perceptions, Basingstoke: Palgrave Macmillan, ISBN 978-0-230-00230-2

Vredenburg, V. (2004) Reversing introduced species effects: Experimental removal of introduced fish leads to rapid recovery of a declining frog. Proceedings Natural Academy of Sciences 101: 7646-7650

Wall, Derek, (1994) Green History : A Reader. London, Routledge, pp. 9-14.

West Coast Environmental Law (2003) Pump it Out: The Environmental Costs of BC's Upstream Oil and Gas Industry. 109 pages. http://www.wcel.org/wcelpub/2003/14028.pdf.

Wilson, E. W. (1989). Treats to Biodiversity, Scientific American.

Winckler, S. (1992). Stopgap measure. The Atlantic Monthly, 1992, pp.74–81.

World Bank, (2003). "Sustainable Development in a Dynamic World: Transforming Institutions, Growth, and Quality of Life", World Development Report 2003, International Bank for Reconstruction and Development and Oxford University Press.

Worsley, A. & Skrzypiec, G. (1998). "Environmental attitudes of senior secondary school students in South Australia", Global Environmental Change-Human and Policy Dimensions 8:3, pp.209–225.

Yahya Don, (2005). "Kepimpinan Pendidikan di Malaysia", PTS Professional Publishing Sdn. Bhd., Pahang

Ziauddin, S. D. (1985). "Islamic Futures", Mensell Publishing Limited, New York.

APPENDICES

APPENDIX – I

A STUDY ON ENVIRONMENTAL AWARENESS IN RELATION TO ACADEMIC ACHIEVEMENT ON SOME SELECTED SOCIAL GROUPS IN WEST BENGAL

QUESTIONNAIRE

Name : _____

Class : _____ Roll No. : _____

Name of School : _____

Marks Obtained : _____

Researcher: Parimal Sarkar

Research Guide: Dr. Dibyendu Bhattacharyya

Department of Education, University of Kalyani (IASE)

Kalyani, Nadia, 741235

Research Guide : Dr. Shyamsundar Bairagya

Department of Education, University of Gour Banga

Malda – 732103, West Bengal

QUESTIONNAIRE

	SA	A	UN	DA	SDA
1. Promote environmental education through awareness is a social need.	☐	☐	☐	☐	☐
2. India has a great role in conservation of Environment	☐	☐	☐	☐	☐
3. Our animals and plants can be preserved only through conservation of Environment.	☐	☐	☐	☐	☐
4. Overall knowledge about Environment should be a part of education.	☐	☐	☐	☐	☐
5. Backward classes have lower environmental awareness.	☐	☐	☐	☐	☐
6. The chemicals used to protect the crop from insect are harmful for other animals of the field, like birds, frog, earthworm etc.	☐	☐	☐	☐	☐
7. Sympathetic attitudes towards environment should be developed among general people.	☐	☐	☐	☐	☐
8. It is our responsibility to participate in different programmes of environmental awareness	☐	☐	☐	☐	☐

	SA	A	UN	DA	SDA
9. Achievement and awareness are keenly related on the basis environmental values.	☐	☐	☐	☐	☐
10. For the lack of favorable environment and to protect diversity necessary arrangements to be created.	☐	☐	☐	☐	☐
11. Backward classes have greater awareness regarding environment as their life pattern is very much linked and dependent on Environment.	☐	☐	☐	☐	☐
12. Lack of awareness about conservation has caused extinction of golden toad, rhinoceros, different types of birds, iguana etc loosing Biodiversity.	☐	☐	☐	☐	☐
13. Cutting of few trees is also harmful.	☐	☐	☐	☐	☐
14. Wild life conservation, creation of national park and other preservative measures are necessary for maintaining Environmental Awareness.	☐	☐	☐	☐	☐
15. Human values can protect environment.	☐	☐	☐	☐	☐
16. Tribal areas are more environment friendly.	☐	☐	☐	☐	☐

	SA	A	UN	DA	SDA
17. Conservation of plant ecology and creation of national plant parks are necessary for conservation of ecological balance.	☐	☐	☐	☐	☐
18. Natural influence can contribute in curriculum are influencing for generating environmental awareness.	☐	☐	☐	☐	☐
19. Education system should follow the environmental objectives effectively in implementing curriculum.	☐	☐	☐	☐	☐
20. The main source to protect biodiversity is Environmental Awareness.	☐	☐	☐	☐	☐
21. The element of awareness is not sufficient without knowledge, understanding, the change of attitude and physical participation.	☐	☐	☐	☐	☐
22. School Curriculum has focused towards the aspects of Environmental values had been taught through their subjects and co- curricular activities.	☐	☐	☐	☐	☐
23. Plantation is an urgent need for protecting and awareness generating programme.	☐	☐	☐	☐	☐

	SA	A	UN	DA	SDA
24. Environment knowledge can enhance awareness.	☐	☐	☐	☐	☐
25. There is no need to stop deforestation for timely monsoon and normal amount of rain.	☐	☐	☐	☐	☐
26. Value based education promotes healthy atmosphere in the institution.	☐	☐	☐	☐	☐
27. Spending money for Environmental Awareness is not necessary for a poor country like India.	☐	☐	☐	☐	☐
28. The main cause behind the crisis of environment is negligence and ignorance of common people by using it properly.	☐	☐	☐	☐	☐
29. School and the educators have become the societal agents should present the good attitude in shaping element of environmental awareness among the students.	☐	☐	☐	☐	☐
30. The Environmental balance is hampered due to the never ending need of mankind for the name of urbanization and development.	☐	☐	☐	☐	☐
31. Environmental Awareness is not directly or indirectly balancing the ecosystem.	☐	☐	☐	☐	☐

	SA	A	UN	DA	SDA
32. Today many plants and animals have become endangered or extinct as the conservation of biodiversity have been neglected.	☐	☐	☐	☐	☐
33. Environmental awareness has no role in control of pollution caused by the smokes from industry, vehicle, wood or coal.	☐	☐	☐	☐	☐
34. Consciousness regarding sustainable agriculture is one of the most important factors of Environmental Awareness.	☐	☐	☐	☐	☐
35. The modern technology of conservation of Environment is so costly that it is not possible in the poor country like India.	☐	☐	☐	☐	☐
36. The tranquility of environment, that include the stability of the ecosystem, contributes towards the healthy society with values is able to increase the productivity of the nation.	☐	☐	☐	☐	☐
37. The environmental awareness among the students can be viewed and related with the help of generating environmental values.	☐	☐	☐	☐	☐
38. Broader area of subject matter can be covered with elements leading to Environmental awareness.	☐	☐	☐	☐	☐

	SA	A	UN	DA	SDA
39. I prefer to use posters, models and other activities in class regarding environmental awareness.	☐	☐	☐	☐	☐
40. Environmental Education should be activity centric.	☐	☐	☐	☐	☐
41. Academic Achievement and Awareness towards environment have a close relationship in our society.	☐	☐	☐	☐	☐
42. Awareness activities in academic institutions may be enhanced by celebrating on the occasion of special days like Earth Day, Environment day etc.	☐	☐	☐	☐	☐
43. Only a limited students who understand the relation between environmental attitudes and environ- mentally responsible behaviours	☐	☐	☐	☐	☐
44. To increase the number of essential plants nature study is very much important.	☐	☐	☐	☐	☐
45. Plantation of trees in educational Institutions and surroundings by the active participation of students and teachers are essential for generating environmental awareness.	☐	☐	☐	☐	☐

	SA	A	UN	DA	SDA
46. Facilitate development of education and training materials and aids in the formal education sector for environmental awareness	☐	☐	☐	☐	☐
47. The application of teaching media by teachers should include the elements of environment.	☐	☐	☐	☐	☐
48. Spreading of environmental education, especially in the non-formal system among different sections of the society will be encouraged.	☐	☐	☐	☐	☐
49. The people should conscious when using chemicals for insecticides and for consumer goods in domestic purpose are getting mixed with air, soil, river and ocean water and thus hampering the Environment.	☐	☐	☐	☐	☐
50. Quality of human behavior with their surroundings among different social groups can enhance environmental awareness.	☐	☐	☐	☐	☐