ENVIRONMENT AWARENESS ABILITY AMONG STUDENTS IN IMPHAL

By

ANGOM TAMPHASANA CHANU

A THESIS SUBMITTED TO THE
AVINASHILINGAM UNIVERSITY FOR WOMEN
COIMBATORE - 641 043

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF SCIENCE IN RESOURCE MANAGEMENT

MAY 2007

CERTIFICATE

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CERTIFIED AS BONAFIDE RESEARCH WORK

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ACKNOWLEDGEMENT

ACKNOWLEDGEMENT

Gratitude is the most exquisite form of courtesy

- Jacques Maritan

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INTRODUCTION

I. INTRODUCTION

"Nature is lenient. It often does not punish us for our sins immediately. Thus we can go on breathing impure air and drinking impure water over long periods without any dramatic ill effects. But, such a thing lowers the vitality and make one fall an easy prey to disease".

- Mahatma Gandhi

Ancient Indians listed five important environmental concerns: space (akasha), air (vayu), energy (agni), water (apa) and land (bhoomi). They were to be treated with respect and even attainted the status of Deva or Godhood. Today, atleast four of these five concerns are threatened, threatening the existence of people on this planet. Air, water, energy and land are polluted, over-exploited and misused (Agarwal,2005).

Environment has become the concern of all; the academicians, intellectuals, scientists policy makers and government across the continents (Batra, 2006). The interaction of society with nature is so extensive that we are all confronted with different kinds of environmental problems affecting the entire humanity, pointed out by Sehgal, 2006.

The environment which sustains life is in peril at present. Human actions are responsible for this. Rapid industrialization, further 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 interrelationships among the natural,

social and technological environments (Ministry of Rural Development, 2004).

As Agarwal (1999) points out it is important to regulate human conduct. Law is an important tool which regulates human conduct and environmental law is an important medium through which environment degradation and pollution can be controlled and prevented. But laws alone cannot bring about change in human behaviour. Each individual in the country must involve in protecting environment by reducing wastage of natural resources and to protect the environment from degradation.

Bharucha (2005) indicates that this can only be made possible through public awareness. Mass media such as newspapers, radio and television should play a role in creating awareness among public. Government of India has initiated steps on a war footing to ensure the protection of environment. Among its schemes, other than laws, environmental education and awareness programmes are top ranked (Kumar, 2005). As an ultimate win, the country's top Judiciary, has made it mandatory to include 'Environment' as a subject in the syllabus in all educational institutions from the academic year 2004-2005. The Ministry of Environment and Forest takes up projects to organise seminars programmes to reach different segments of the population.

According to Eblen and Eblen (2001) goals of environmental education are to develop a world population that is aware of and concerned about total environment and its associated problems and commitment to work individually and collectively towards solution of

current problems and the prevention of new ones. Environment protection has been operationalised into a concept of sustainable development which implies, meeting the needs of the present generation without compromising the needs of future generations.

The ultimate goal of environment education or awareness is action-action to improve the environment, prevent its degradation, and sustain its well being. It is a sustained process in which the individuals gain awareness, recognize values and develop skills and attitude necessary to understand surroundings (Sabri, 2004).

Now social scientists including psychologists have also become concerned about how the environment affects people. Just as toxic chemicals in the air and the ground can damage physical health, so other characteristics of the environment can damage mental and social health (Arvind, 2006). Noise, crowding, building design and community structure all determine the quality of people's lives and day-to-day functioning. Mankind has radically altered the natural environments within which the human species had lived for millennia in balance with other animals, plants and the physical world Chhatwal *et al.,* (1999).

Devi (1998) and Singh *et al.*, (2001) pointed out that to provide a predictable supply of desirable foods, man developed agriculture. Its consequence has been soil depletion, deforestation and erosion. Improved medical care increases longevity and physical well being but it contributes to population increase and overcrowding. More homes mean less forest, more comfortable transportation leads to air pollution, more

manufactured goods lead to depletion of natural resources. As maternal needs of food and shelter are better served, aesthetic needs for natural beauty and open space are frustrated. Ghanta and Rao (1998) opined that efforts to improve the quality of life may reduce the habitability of man's world. No wonder that concern with ecology is so widespread, nor is it limited to the relation between human life and the physical and biological environment, it extends too to the social institutions within which man lives.

These themes are echoed in the emergent fields of "environmental psychology" and an ecological orientation to community mental health (De young, 1991). It focuses on the relationship between the physical environment and human behaviour and well-being (Ghosh,2003). Numerous studies have demonstrated negative consequences of environmental problems on mental health(Katyal and satake,1998). Krishna *(1998*) explored the effects of air pollution on the physical and mental health of the people of industrial and commercial areas.

People have become more concerned about the environment. The environment movement has focused attention on the quality of the air people breathe and the water they drink, on how new dam construction harms wildlife and how strip mining devastates the landscape and causes floods. (Dhameja, 2000).

Proper environmental education can help people to come out of physical and mental problems. Environmental education is an approach to learning (Murthy, 2004). Environmental education is socially relevant as

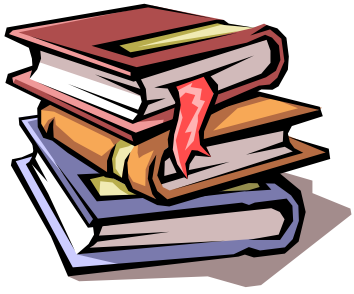
it helps us how unchecked and unplanned development pollutes air, water and soil and thereby threatening our subsistence and existence. Therefore, environmental education means the educational process dealing with man's relationship with his natural and man-made surroundings and includes the relations of population, pollution resources allocation and depletion, conservation, transportation technology, energy, urban and rural planning to the total biosphere (Nanda, 1997 and Tyler, 1997).

On the other hand environmental awareness means to help social groups and individuals to acquire an awareness of and sensitivity to the total environment and its allied problems (Prabhakar, 2001). Improve the environment is to improve the quality of life. It is not only a question of air and water pollution but also 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 (Saxena, 2001 and Sridevi and Vardhani, 1998).

The main hurdle in protecting the environment in India is that there is a lack of scientific knowledge and the will to act. Therefore, awareness and education of environment is the paramount concern of all the citizens of society (Saha, 1997). Environment protection starts by creating an awareness among the people so that it becomes part of their life style. The key to achieving this goal lies in environmental education which includes awareness, knowledge, attitudes, skills and participation of people in protecting environment. Therefore the study on

‘Environment Awareness Ability Among Students in Imphal’ has been undertaken with the following objectives to :

- measure the extent and degree of awareness of people on environmental
- pollution and its protection.
- analyse the factors influencing the awareness ability.
- create awareness among students on environmental issues, and
- study the impact of the awareness programme.



REVIEW OF LITERATURE

II. REVIEW OF LITERATURE

The Review of literature pertaining to the study on "Environment Awareness Ability Among Students in Imphal" is discussed under the following headings:

A. Environmental crisis and conservation
B. Environmental rights and responsibilities
C. Physical environment and human behaviour.
D. Environment education and awareness

A. Environmental crisis and conservation

The word 'Environment' is an expression of very wide amplitude. It takes into account all these factors which directly or indirectly have a bearing upon the natural surroundings of human beings (Balakrishnan, 1993 and Bala Murugan, 2005). There exists a close relationships between man and his environment in the absence of which a human being cannot survive. Dr. T.N. Khoshoo defines environment as the sum total of all conditions and influences that affect the development and life of all organs. The legal definition of environment as given in the Environment (Protection) Act, 1986, is that includes water, air and land and the inter-relationship between and among water, air, land and human beings, other living creatures, plants, micro-organisms and property (Sehgal, 2006). Environment includes surface water, ground water, air, land, minerals and oil and other element available from the earth (Sharma, 2001and Cunnigham *et al*., 2001). Environment is interwoven in the day-to-day life of human beings and as such human beings play a great role in

preserving and improving the environment for the sake of a better future (Muthu, 1998). Environment has been defined as the aggregate of all external conditions and influences affecting the life and development of an organism. Environment is both a physical and social milieu (Finer, 1996).

The basic minimum need of the people are clean water for drinking and household use; clean air; health care, both preventive and curative; food and nutrition; economic stability especially for women; environmental sanitation including low cost drainage, latrines and trash collection; fuel for cooking and heating; fodder for livestock; recreation for children in particular and improved shelter for protection, privacy and security particularly for the weaker sections of the society. Most of these items can have negative environmental impacts if not fulfilled in proper manner (Park, 2003).

As Kudesia (2002) points out everyone lives in a world where in natural resources and limited which are all a part of our life support system. Without them life itself would be impossible. As the population keep increasing in numbers the Earth's resources base must inevitably shrink. The Earth cannot be expected the indefinitely sustain this expanding level of utilization of resources. According to Manikandan (2004), environmental problems are always interrelated. Sometimes a solution to one problem actually create another problem.

As stated by Saxena (2000), Prabhakar (2001), and Kudesia (2002) and Prabhakar (2003) the environmental problems are as follows :

- Population explosion - results in a larger use of the four essentials of life by man - land, food, water and air, which adversely affects the dynamics of all plants and animal life on earth by altering the ecological balances.
- Depletion of physical resources - renewable and non-renewable.
- Pollution - reduction in quality of the environment by the introduction of impurities.
- Green house effect - the temperature rises by even a few degrees.
- Ozone layer depletion.

The reckless distinction of forests and despoliation of pollution have disturbed some food chains found in nature and have caused extinction of some species of animals, creating thereby an ecological problem (Ghosh, 2003).

The destruction of forests has been tremendous since industrial revolution. The aftermath has been soil erosion and land dereliction. The discharge of industrial wastes contaminates water and mixes it with poisonous chemicals which kill aquatic plants and animals. The industrial waste, sewage and domestic waste water are dangerous sources of water pollution (Ramachandran, 2003).

The air pollution is more dangerous than water pollution. The primary source of air pollution is smoke remitted by different objects, right from the hearth in a hut to the exhaust of the jet aeroplanes. In

addition to despoliation of land and pollution of water and air, noise pollution is also increasing day by day (Sridevi and Vardhani, 1998).

Natural Resources which used to be available in abundance have depleted most alarmingly in some causes. Everyone have concern for environment wonders whether development can be sustained if consumption of water and energy is not regulated and if pollution of air, soil and water is not controlled (Venmathi and Muthu, 1997). Studying and understanding resources is imperative for the proper management of the environment. Effective ways to conserve both renewable and nonrenewable resources include reducing wasteful consumption and recycling whenever possible (Ranganathan *et al.*, 2004)

According to the Dictionary of Environment (Mc Millan) Environmental conservation means the planning and management of resources so as to secure their wise use and continuity of supply while maintaining and enhancing their quality, value and diversity. The action of conservation includes preservation from destructive influences, natural decay or waste (Stegar and John, 1990).

For conservation of natural resources, man has to afforest the despoiled lands. He has to reduce water, air and noise pollution. He has to plan for conserving soils, water, forest, wildlife and for beautifying his environment. He has also to implement these plans and to evaluate them from time to time and to take remedial steps (Pandey and Kaushik, 2004).

In this stage the protection of environment is a matter that concerns all countries of the world, irrespective of their size, level of development and form of policy. Human activity in some form or the

other is considered the main cause of environmental degradation (Sabri, 2000). Therefore it is important to regulate human conduct.

B. Environmental rights and responsibilities

As pointed out by (Thakur, 2003 and Krishna and Rao, 1988), changes in the ecological system occur continuously through natural process and man's activities but the system has to ascertain extent remarkable tendency to rebalance itself.

To regulate human conduct Environmental Laws have been constituted by Indian Government. Law is an important tool which regulates human conduct and environmental law is an important medium through which environment degradation and pollution can be controlled and prevented. It involves the conservation of indigenous resources so that they can be used in a manner that is useful not only for the present society but also for future generations. It also governs the inter-relationship and inter-dependence between natural resources and human beings (Manoharan, 2000 and Sehgal, 2006).

Environmental Law

The main source of environmental law is the constitution of India. The Indian Constitution is amongst the few in the world that contains specific provisions on environmental protection. The Environment (Protection) Act, 1986 is another important price of legislation that provides a framework for coordination of activities between the Central and State governments to prevent environmental pollution and degradation (Swami and Das, 1998).

According to the Tyler (1997), there are two hundred Central and State Statutes that have a bearing on environmental protection. But most of these legislations contain scattered provisions relating to the environment. As pointed by Sehgal (2006) in addition to Constitutional provisions there are principal statutes dealing with environment which are as follows :

a) The Environment (Protection) Act, 1986.
b) The Water (Prevention and Control of Pollution) Act, 1974.
c) The Air (Prevention and Control of Pollution) Act, 1981.
d) The Indian Forest Act, 1927
e) The Forest (Conservation) Act, 1980 as amended in 1988.
f) The Wild Life (Protection) Act, 1972 as amended in 2002.
g) The Factories Act, 1948.
h) The Insecticides Act, 1948.
i) The Mines Act, 1952.
j) The Atomic Energy Act, 1962.
k) The Public Liability Insurance Act, 1991.
l) The National Environment Tribunal Act, 1995.
m) The National Environment Appellate Authority Act, 1997.
n) The Biological Diversity Act, 2002.
o) The Protection of Plant Varieties and Farmer's Rights Act, 2000.
p) The Prevention of Cruelty to Animals Act, 1960.

Besides the above specific legislations, there are provisions contained in the criminal law, such as, the Indian Penal Code and the

Criminal Procedure Code, which make environmental pollution and degradation an offence.

The Constitution of India imposes an obligation on the state and the citizens of the country to protect and improve the environment. The Directive Principles of state policy and the Fundamental Duties chapters clearly contain the natural commitment to protecting and improving the environment. Environment protection and improvement were explicitly included in the constitution by the Constitution (42 Amendment) Act of 1976. These Directive Principles are guidelines, which the Government must follow while governing the country. They cannot be enforced by a court whereas fundamental rights are enforceable.

In the year 1976 the Constitutional Forty-second Amendment Act came into force. The amendment incorporated. Articles 48-A and 51-A (g) in the body of the constitution which imposed a duty on the state on the citizens to protect and improve the environment and safeguard the forests and wildlife of the country.

Fundamental rights and environmental protection:

The Fundamental Rights of Indian citizens are enshrined in Part III of the constitution. Principle I of the Stockholm Declaration on Human Environment finds a reflection in Articles 14, 19 and 21 of the constitution, which deal with the right to equality, freedom of expression and right to life and personal liberty (Talwar and Kishtwaria, 2004). All these three Articles, have been interpreted by the judiciary in a manner that not only protects the environment against the hazards of pollution but

also recognizes the right of citizens to live in a healthy environment as a human right.

Duties towards environmental protection:

- **Duties of Municipal bodies :** The government bodies like municipal bodies are trustees for proper maintenance of public places and forests.
- **Duty to Preserve National Monuments :** The duty of Indians and the Government of India to preserve National Monuments, by removing solid wastes and encroachments in the premises of monuments to comply with the Municipal Solid Waste (Management and Handling) Rules, 2000.
- **Duties of Industrial Owners :** An enterprise which is engaged in hazardous or inherently dangerous activity has an obligation to conduct the enterprise with the highest standards of safety and if any harm results on account of such activity, the enterprise must be absolutely liable to compensate for such harm.

All the principles have been used by the Indian Courts in some way or the other impose duties on Government bodies like the municipalities and also the industrial owners to protect the environment and the victims of environmental pollution.

C) Physical environment and human behaviours

Present day, problems of varied nature in human life are directly or indirectly very much related to environment. Today, environment has become survival issue. Environment has been contributing very much to

socio-economic, political and other similar policies of the world. Therefore environment plays an important role in human welfare (Padmanabhamurthy, 1992).

In real life, environment is all pervasive, from one's own home to one's work place and through out the socio-economic systems, involving the various fields of industry, agriculture, urbanization, transportation and so on. (Palanichami, 2006). According to De Young (1991) the environment includes all that is natural on the planet as well as social settings, built environments, learning environments and informational environments. This shows that the behavior of human beings are moulded by the environment around him.

Pandey (2004) states that environment influences behaviour at different levels. The personality make-up of people of a country is shaped by the nature and type of environment in which they live.

The characteristic personality make-up of persons in a country is shaped by the nature and type of environment to which they are subjected for long periods of time. Racial differences in personality can to a large extent be traced to the influence of different environments to which people of different races have been subjected for generations. (www.psychology4all.com).

According to Ghose (2003) Climate influences temperament. The cold climate presumably makes people 'Rajasik'. The possibility of

freezing induces insecurity and a cold place one has to keep working to warm up the body.

People in a very warm climate are likely to be ‘Thamasik’. This kind of temperament is characterized by laziness and inertia. In a very hot place, it is unpleasant to keep working, because of perspiration and fatigue. In the tropics, the reasons do not change much and resource extraction is easy throughout the year. This kind of climate makes for an attitude of surrender and the approach to the environment is marked by fear and superstition (Rao, 1998).

According to Thomson(2004), the moderate climate is most conducive for the ‘Sathwik’ temperament. This is characterized by an awareness of oneself and the relationship of the environment to one’s adjustment. Consequently the sathwik approach involves living in harmony with the environment. The insight into the role of the environment in our well being leads to a felt need to conserve the natural environment. The sathwik temperament is holistic, infinitive and well balanced.

Increase in population density beyond the optimum point is also part of alteration of the environment and this leads to population stress causing aggression and breakdown of behavior. (www.Epa.gov.enviro.ed/.)

Many studies demonstrate the deleterious influence of urbanization on human behavior. Instinctual behaviour patterns of human

beings also seem to break down under artificial and overpopulated urban conditions. It has been shown that the incidence of mental illness increases with urbanization. The highest incidence of schizophrenia is at the center of cities. Only about one fifth of the population of big cities seems to be relatively free from debilitating symptoms of pathology. Crime rates in big cities are increasing at an alarmingly high rate and many of the major cities of the world have come to be known as crime cities. The increasingly violence of mothers towards children reflected in high rates of baby battering and the rising rates of divorce and illegitimacy point to the breakdown of instinctive behaviour patterns in human beings. (www.nav.edu./ecop.ec).

According to Ranganathan *et al.* (2004), human Behavior in the environment discusses the biological, psychological, social and cultural influences that shape the functioning of individuals, families, households, social groups, communities and organizations, relates into account the expected and unexpected stresses, challenges, and life tasks that can influence development within social environment.

The closeness to elements of nature like pools, plants and trees makes people more relaxed. Hence, one of the main considerations of town planners and architects is how to incorporate elements of nature in their designs (Pandey and Koushik, 2004).

Preserving, restoring and creating a preferred environment is thought to increase sense of well being and behavioral effectiveness in humans (Sachin, 2006) along with the common environmental stressors

(e.g. noise, climatic extremes) some define stress as the failure of preference, including in the definition such cognitive stressors as prolonged uncertainty, lack of predictability and stimulus overload. Research has identified numerous behavioral and cognitive outcomes including physical illness, diminished altruism, helplessness and attentional fatigue. (Kudesia and Tiwari, 2002).

The citizen involvement in environmental design, management and restoration efforts is concerned not only with promoting citizen comprehension of environmental issues but with insuring their early and genuine participation in the design, modification and management of environment (Joshi, 2002).

D) Environment education and awareness

For the better management of natural resource the proper protection and conservation of the environment for well being of future generation the maintenance of a proper balance between the economic development and the consequential environmental degradation is need of the hour (Sharma , !998).

Nature is a common property that resource shared and it is used by everyone. To conserve their natural heritage, people must keep in mind the principle 'think globally, act locally' (Swamy, 1998). According to Talwar (2004), Nature conservation must become a people's movement. To achieve this purpose, environmental awareness is essential among the public. Dissemination of information aimed at creating environment awareness is essential for protecting nature.

According to Shankar, 2004 and Prabhakar, 2001, The changing environment conditions has passed various threats to the survival of man and other species in this complex universe. The economic development of a country depends upon its technological and industrial growth but it is possible under the existing environmental conditions. Further deterioration of the environment to endanger our life on earth cannot be permitted for the survival of human beings and other species. Hence the environment, ecology and pollution control education has become major concern in the recent years at national and international level. Everyone wants to live in the pollution free environment but there is lack of awareness about the environmental issues among the masses.

The increase of environmental education as one of the priority areas of educational innovation seems to be based on the increasing awareness of the crucial role which a sound environment would play for the survival and further development of human beings. Environmental education is the process of recognizing values and clarifying concept in order to develop skills and appreciate interrelatedness among human beings, their culture and their biophysical surroundings. Environmental education also entails practice in decision-making and self-formulating a code of behaviour about issues concerning environmental quality. (Venmathi and Muthu, 2002).

The chief goals of environmental education in India must be to:

i) improve the quality of environment,
ii) create an awareness among people on environmental problems and conservation and

iii) create an atmosphere so that people participate in decision making and develop the capabilities to evaluate the developmental programmes (Rana and Singh, 1997).

Objectives of environmental education

According to Sabri (2004), the chief objectives of environmental education that individual and social groups should acquire awareness and knowledge, develop attitude, skills and abilities and participate in solving real-life environmental problems.

The perspective should be integrated, inter-disciplinary and holistic in character. The public in rural, tribal, slum and urban areas; women and student and teachers in schools, colleges and universities as well as planners, decision and policy makers, programme implementors and R & D workers need to be educated about environment. (Selvan and Krishnan, 1996).

According to Ravindaranath (1991), Environmental education helps social groups and individual to acquire awareness, gain knowledge, develop attitude evaluate environmental measures and education programmes and participate in working toward finding out solutions to environmental problems.

The spectrum of environmental education at the school level falls in four major, but integrating and interrelated components : Awareness, Real-life situation, Conservation and Sustainable Development. These need to be matched with the needs of the Primary, Lower Secondary, Higher Secondary and College education (Swami and Das, 1998).

According to Panigrahi (2004), the main aim of formal and non-formal environmental education has been to widen the base of awareness in India, a country where centuries co-exist and which is very diverse in almost everything. Such a mass awareness will result in the location specific action programmes which must be thought out and based on scientific technical knowledge. It would also give rise to development that could be sustained on a long-term basis. The basic aim of environmental education has been not to introduce a new subject but a new approach to teaching that cuts across different disciplines.

The importance of environmental awareness cannot be over emphasised. 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 but also includes elimination of disease, hunger, malnutrition, and poverty, distruction of forests, extermination of wildlife, erosion of soil and accumulation of waste. Hence there is an urgent need for proper management of the environment (NANPA, 1997).

The main hurdle in perfecting the environment in India today is that there is a lack of scientific knowledge and will to act. The rich nations and richer sections in a country need non-material growth, but poor nations and their poorer sections are entitled to material growth ethics has come in a major way in resource use, like water, energy, food, goods and services (Goel, 2004 and Gupta *et al.*, 1996).

If we change as individuals, then society, and even government can change. After all a society or a government is only an extension of the individual. Here comes in the "Dharma of Paryavaran', Every citizen of a welfare state like India has to obey and maintain the principle of

"Maximum of well-being with the minimum of consumption" (Ingnachimuthu, 1998).

UNESCO has time and again emphasized that "the challenge of environmental education lies in its implementation". Therefore, along with teachers at various levels, teacher educators, curriculum planners, media specialists, educational planners and administrators, policy makers and other higher level functionaries may also be considered for training in Environmental Education. No single model approach can meet the requirements of their diverse group, and a variety of programme packages flexible in their objectives and scope may be involved (Day and Monrore, 2000).

The importance of environmental education cannot be over emphasized because environment is a common heritage and its restoration either through preventive or curative strategies is an enormous task. Each individual must develop a state and become protector. Environment is essentially a partnership programme in which an individual plays a pivotal role. If individuals are environmentally educated, the society and the government are automatically educated, because the later two are only an extension of an individual. (Aravazhi, 2004).

METHODOLOGY

III. METHODOLOGY

A number of environmental problems have just a local dimension both in rural and urban areas. People should be made aware of these. There is no doubt that attention to environment was overdue and it is time to commit ourselves to look after it with all possible means. It is a moral imperative and prerequisite for environment sustainability. Meaning thereby that there is also a need of an environmental ethics because environment has gone beyond wildlife, pollution and man-made ugliness. It now extends to the very mind and spirit of human being. It touches on the question of need versus greed, and comfort versus luxury. There has to be a voluntary curb on the part of everyone to restrict his wants only to what is essential for human well-being.

The methodology pertaining to the study on 'Environment Awareness Ability Among Student in Imphal' comprises of two phases :

A) Degree of awareness on environment pollution and protection.
B) Environment awareness programme.

A) Degree of awareness on environment pollution and protection

This part of the study includes the following steps:

1) Selection of area

Imphal, the capital of Manipur was selected as the area for the conduct of the study in (Figure 1). Being the native of Imphal the investigator found it easy to conduct the study without any language problem. So far nobody had done the study on this topic and very rare literature is available concerning environment awareness among student of Manipur.

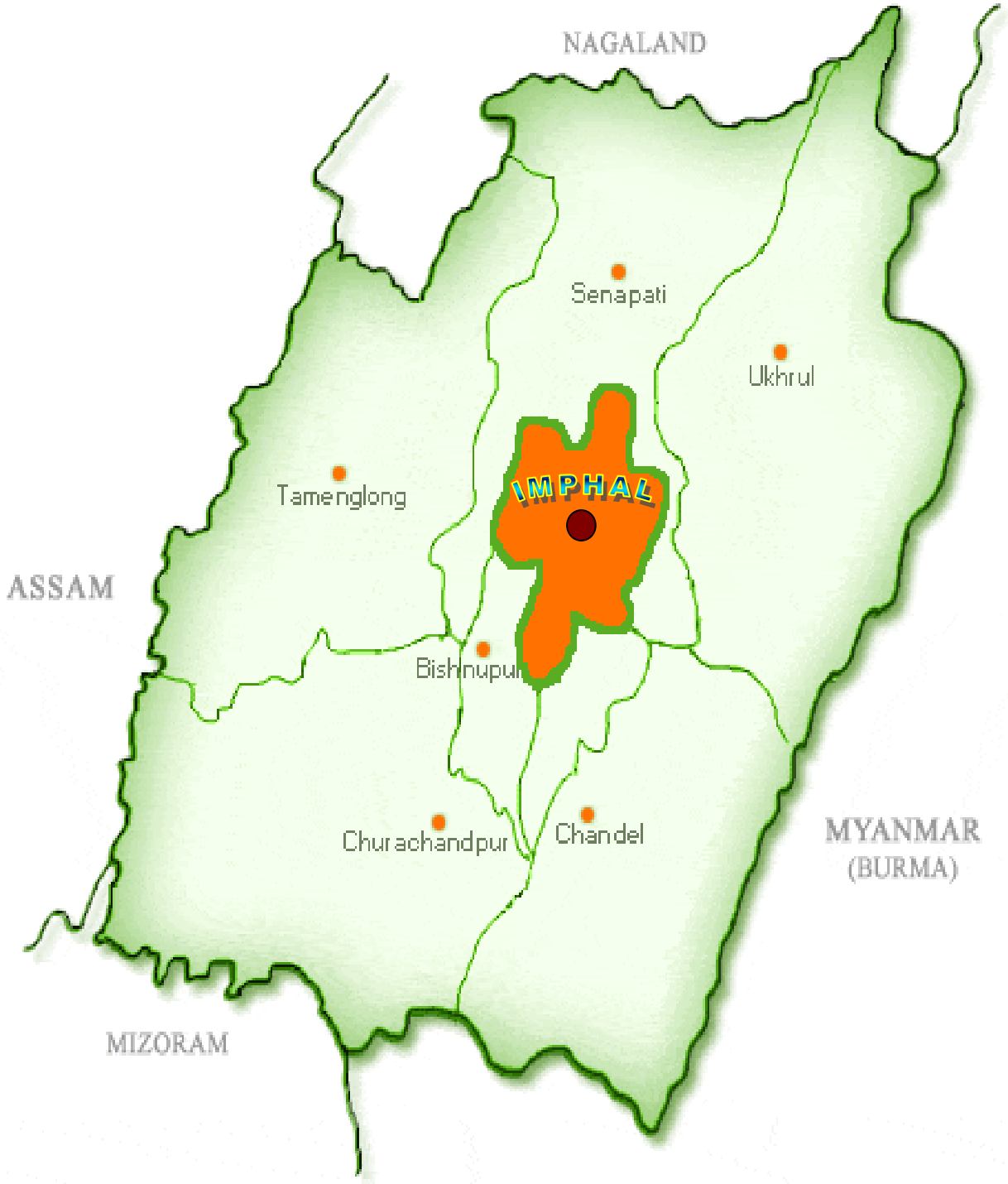


FIGURE 1

LOCALE OF THE STUDY

2) Selection of sample

Totally 200 students, 100 from school and 100 from college comprising of both boys and girls equally were selected as the sample for the study through purposive sampling. According to Gupta (2003), Purposive Sampling is a deliberate selection of certain units on the judgement of the researcher and nothing is left to the chance.

3) Selection of tool

Environment Awareness Ability Measure (EAAM) Scale published by National Psychological Corporation, Agra, was adopted to measure the environment awareness ability of selected samples (Appendix I).

The scale explores the understanding of people about the importance of environment in which they live. And how far the efforts of Government through various legislations, mass-awakening programmes of N.G.Os and other agencies through mass-media, electronic media and print media could achieve their goals. The following concepts on environment were included in the Environmental Awareness Ability Scale :

- Causes of pollution
- Conservation of soil, forest and air
- Energy conservation
- Conservation of human health and
- Conservation of wildlife and animal husbandry

Along with EAAM scale, the informations on family background like ordinal position of the students, educational and occupational status of their parents and family income were collected using a simple proforma.

4) Conduct of the study

An introductory letter was taken by the investigator from the University to the concerned authority for prior permission to conduct to study. The investigator was taken to various department and introduced to the student personally on the first day. Good rapport was first established and needed informations were gathered through informal talk, discussion and observation during their leisure hours. The EAAM scale was administered to college and school students separately (Plate 1a and 1b).

5) Consolidation and analysis of data

There were 51 items in Environment Awareness Ability Measure (EAAM). Each agreed item was given in 1 mark and each disagree item was given zero mark but the negative items were scored inversely. Thus, on the total scale the scores ranged between 0-51. The scale gives a composite scores of environment awareness ability of the subject. The relationship between environment awareness ability and selected variable were statistically analysed (Appendix II) The scores obtained were calculated and compared against the norms prepared which is given in Table I.

TABLE I

NORMS FOR EAAM

Awareness Level	Range of scores
High	37 - 51
Average	16 - 36
Low	0 - 15

B) Environment awareness programme

Prevention of environmental degradation must become a part of all individuals' lives. There is no way in which the government can perform all clean-up functions. Individuals can play a major role in environment management. This can only be made possible through public awareness (Bhaurcha, 2005). The awareness creation should be started in younger age. Hence an awareness programme had been planned with the following objectives to :

- encourage experimentation, interest and bring about change in their mind.
- create a greater awareness among students.
- develop important skill, and
- change the attitudes of students towards environmental protection.

The awareness programme includes the following steps :

1a. School Students

1b. College Students

PLATE 1

ADMINISTRATING ENVIRONMENT AWARENESS ABILITY SCALE

1) Selection of target group

All 200 students, 100 from school and 100 from college who were involved scored less in Environment Awareness Ability Measure (EAAM), were selected as sample for conducting awareness programme, because everybody scored below average in the Environment Awarness Ability Measure.

2) Development of course content

The ultimate goal of environmental awareness is action - action to improve the environment, prevent its degradation and sustain its well being. With these things in mind the course content for the awareness programme was framed and given in Table II.

TABLE II

COURSE CONTENT

	TOPIC	CONTENT
1	Importance of environmental hygiene	• Personal hygiene • Environmental sanitation

2	A Green future	• Importance of trees in life
		• Tree planting techniques
		  • Selection of site and species
		  • Preparing plot for planting
		  • Planting
		  • Protection and maintenance Deforestation and afforestration

3	Clean up	• Quantum of waste produced daily • Need for cleaning • Keeping the surroundings – school and college clean. • Preventing water contamination and stagnation • Maintaining local water source • Disposal of waste • Waste recycling

4	Avoid wastage	• Preventing wastage of
		  ▪ water
		  ▪ fuel
		  ▪ electricity

5	Animals and our lives	• Importance of animals to restore ecology • Earthworms in Vermi Composting • Pest control • Preventing cruelty to animals • Need for preserving reserved forests
6	Environmental rights and responsibilities	• Environmental laws • Fundamental rights

3) Conduct of awareness programme

The classes were conducted with the help of a systematic plan of work. Charts, posters, handouts and government publications were used as supportive materials for the awareness programme. Continuously 10 days, daily two hours, classes were conducted for selected students. Some classes were conducted for all surveyed students because all needed more informations on waste disposal methods, vermi composting and role of individuals in preserving environment. (Plate 2 and Plate 3). An exhibition was put up in school and college for all students to see and benefit (Plate 4).

4) Impact of the awareness programme

The improvement in the knowledge on environment awareness ability was assessed by readministering the same EAAM scale and scores were calculated. These scores were compared against the previous scores and were statistically analysed. The changes in attitude, skill and awareness are presented under Results and Discussion.

a. School principal addressing the students

b. Lecture

PLATE 2

ENVIRONMENT AWARENESS PROGRAMME FOR SCHOOL STUDENTS

a. Lecture

b. Demonstration

PLATE 3

ENVIRONMENT AWARENESS PROGRAMME FOR COLLEGE STUDENTS

School

College

PLATE 4

EXHIBITION ON ENVIRONMENT

RESULTS AND DISCUSSION

IV. RESULTS AND DISCUSSION

Environmental awareness means to help social groups and individuals to acquire an awareness of and sensitivity to the total environment and its allied problems. In such a position society needs to be convinced of the importance of environment and have to realize the fact that the way people will determine their 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. Hence there is an urgent need for creating awareness among people. One such measure was this study and the findings of the study are presented under the following aspects :

A. Personal profile

B. Degree of environment awareness of students

C. Factors influencing the awareness ability

D. Impact of awareness programme

A. Personal profile

The family is the first moulder of the child. Child gets his form and personality from the family. The family environment profoundly influences character formation and environmental concepts among children.

Hence along with the EAAM scale the details on family background was collected and presented under the following headings.

1. Ordinal position
2. Size of family
3. Educational status of parents
4. Occupational status of parents, and
5. Family income.

1. Ordinal position

The position of the children in the family has great influence on the personality and knowledge perception of children. Therefore the detail regarding the ordinal position was collected and given in Table III and Figure 2.

TABLE III

ORDINAL POSITION

Position	Percentage of students			
	School		College	
	Boys N - 40	Girls N - 60	Boys N - 36	Girls N - 64
1	32.5	6.6	3.6	3.6
2	10	21.7	14	20
3	27.5	25.0	36	22
4	15	25.0	5.6	9
5	15	21.7	8.4	13

It is clear from the above Table that many families had nearly five children in the home. Majority of them were either first child or third child in the family. Family planning concept was not yet reached the families in Manipur. Single child concept was not there in the selected area.

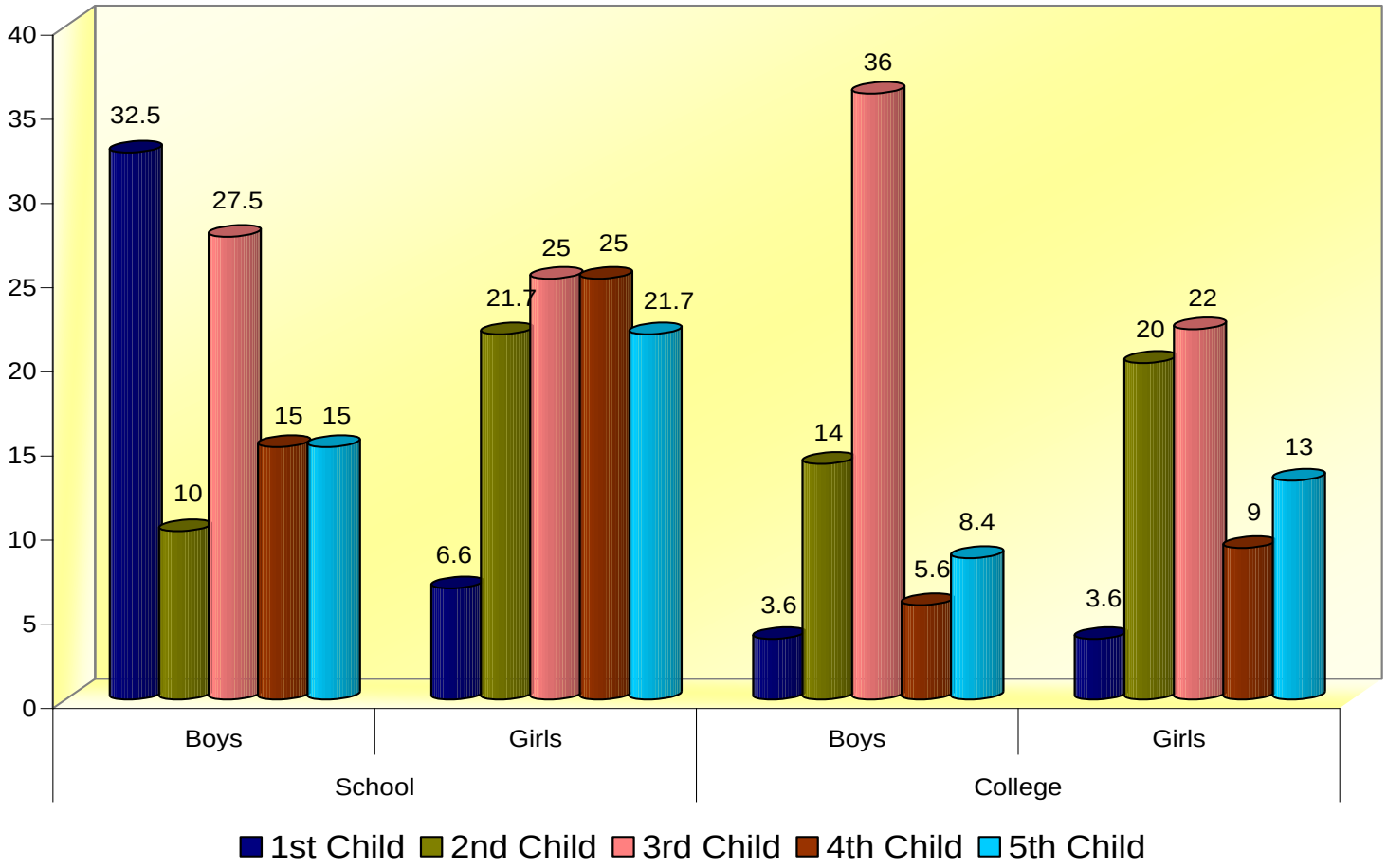


FIGURE 2

ORDINAL POSITION

2. Size of family

The number of children in the family defines the size of the family. The size of the families is shown in Table IV and Figure 3.

TABLE IV
SIZE OF FAMILY

Size of Family	Percentage of students	
	School	College
Small – 1<4	33	17
Medium – 5<6	36	46
Large – 7-6	31	37

It is evident from the Table that a majority of college students (46 per cent) and school students (36 per cent) belonged to medium family with five to six members in the family. The concept of small family norms was not taken up by the families in Manipur, Since the population was very less. (HUDCO, 2002).

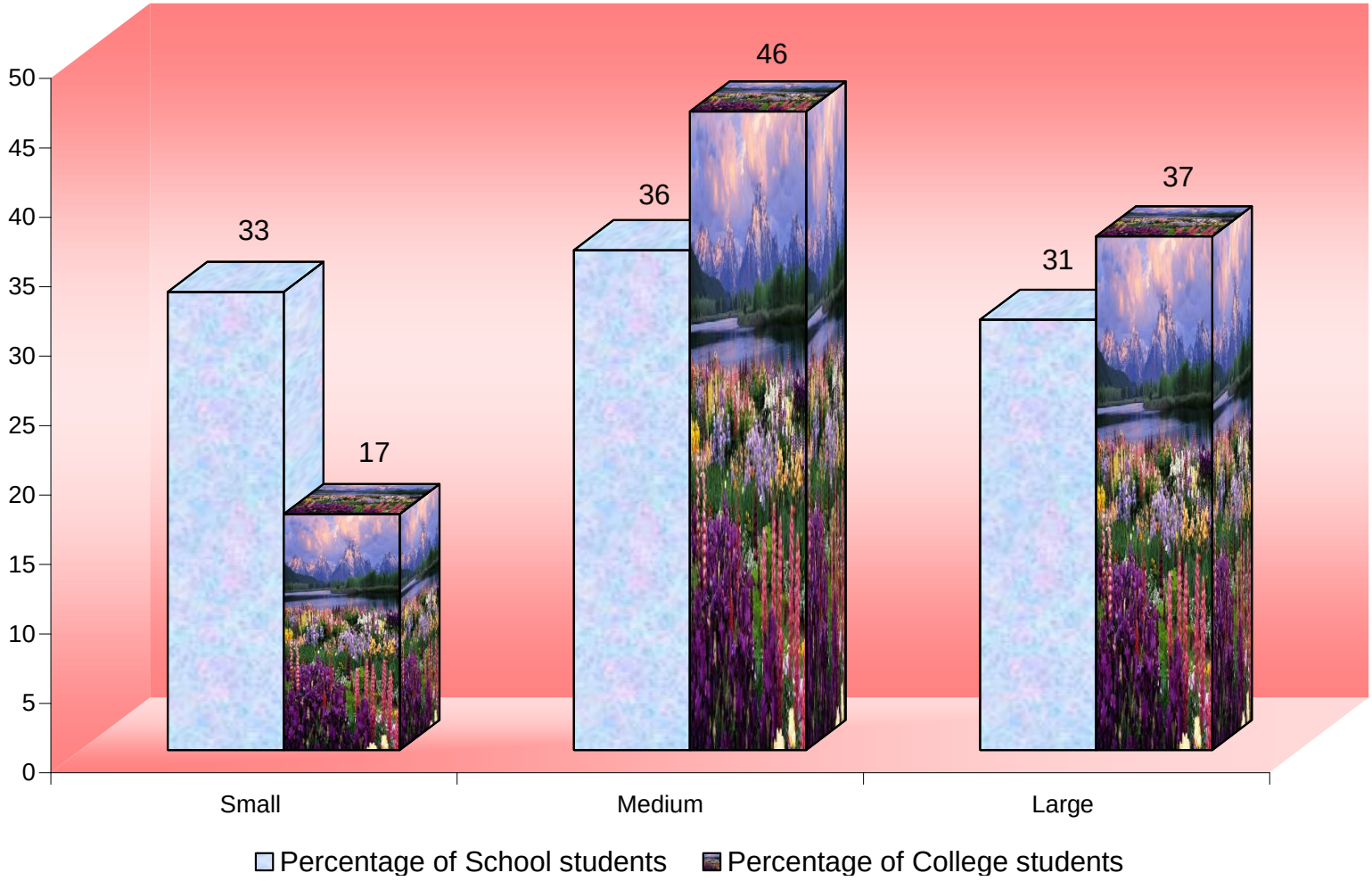


FIGURE 3

SIZE OF FAMILY

3. Educational status of parents

Table V and Figure 4 show the educational status of the fathers of the selected school and college students.

TABLE V
EDUCATIONAL STATUS OF FATHERS

Education	Percentage of Fathers	
	School	College
Primary	20	22
Secondary	22	21
Under Graduate	48	37
Post Graduate	10	20

It is clear from the above Table that a majority of fathers of school students (55 per cent) as well as college students (43 per cent) were graduates. Very few of them had primary education. Twenty per cent of fathers of college students were post graduates where as only 10 per cent of fathers of school students were post-graduate.

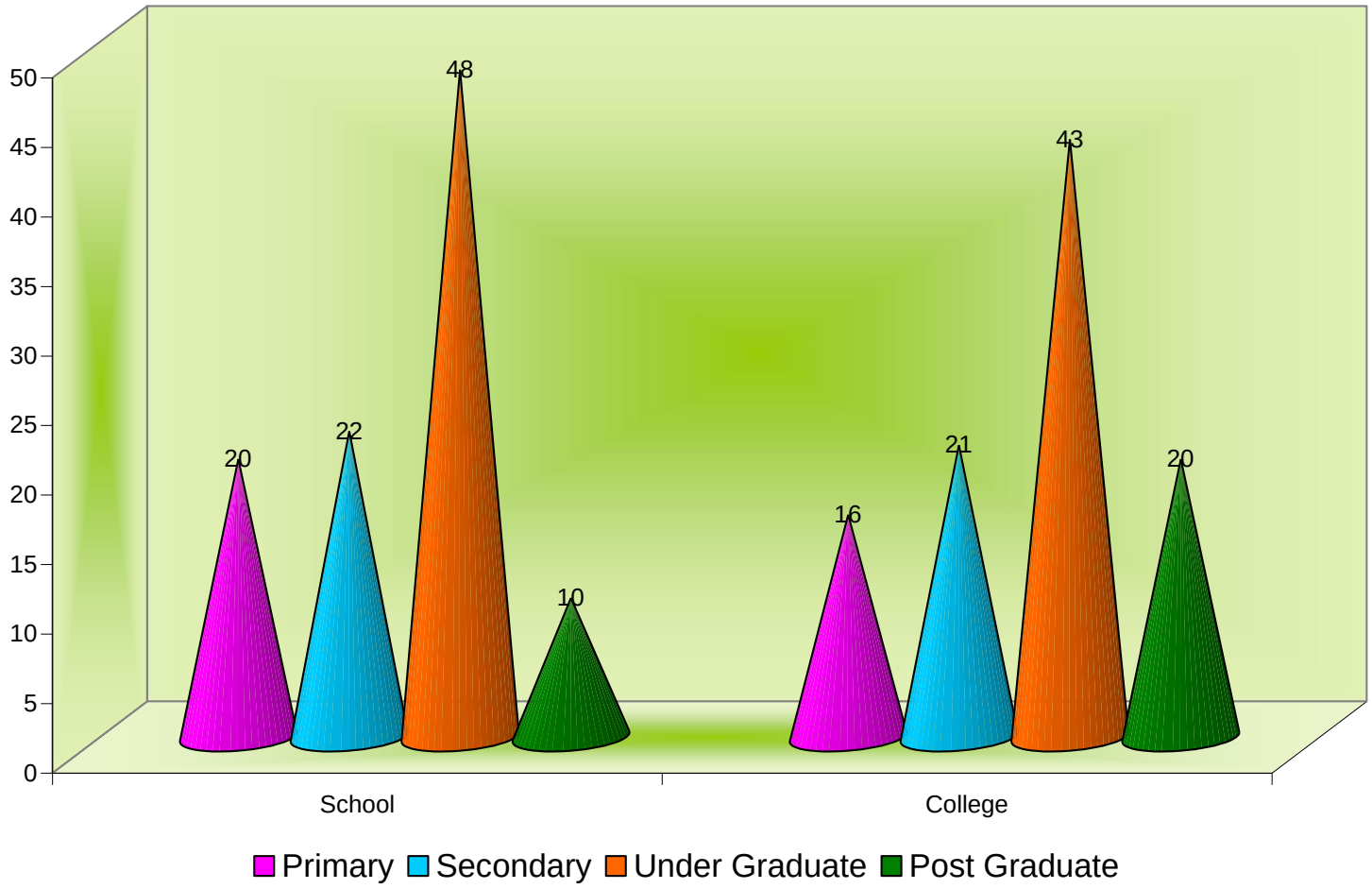


FIGURE 4

EDUCATIONAL STATUS OF FATHERS

Table VI and Figure 5 show the educational status of the mothers of selected students.

TABLE VI

EDUCATIONAL STATUS OF MOTHERS

Education	Percentage of Father	
	School	College
Primary	10	20
Secondary	48	37
Under Graduate	20	22
Post Graduate	22	21

It is interesting to see that none of the mothers were illiterates. A majority of mothers of school as well as college students were graduates.

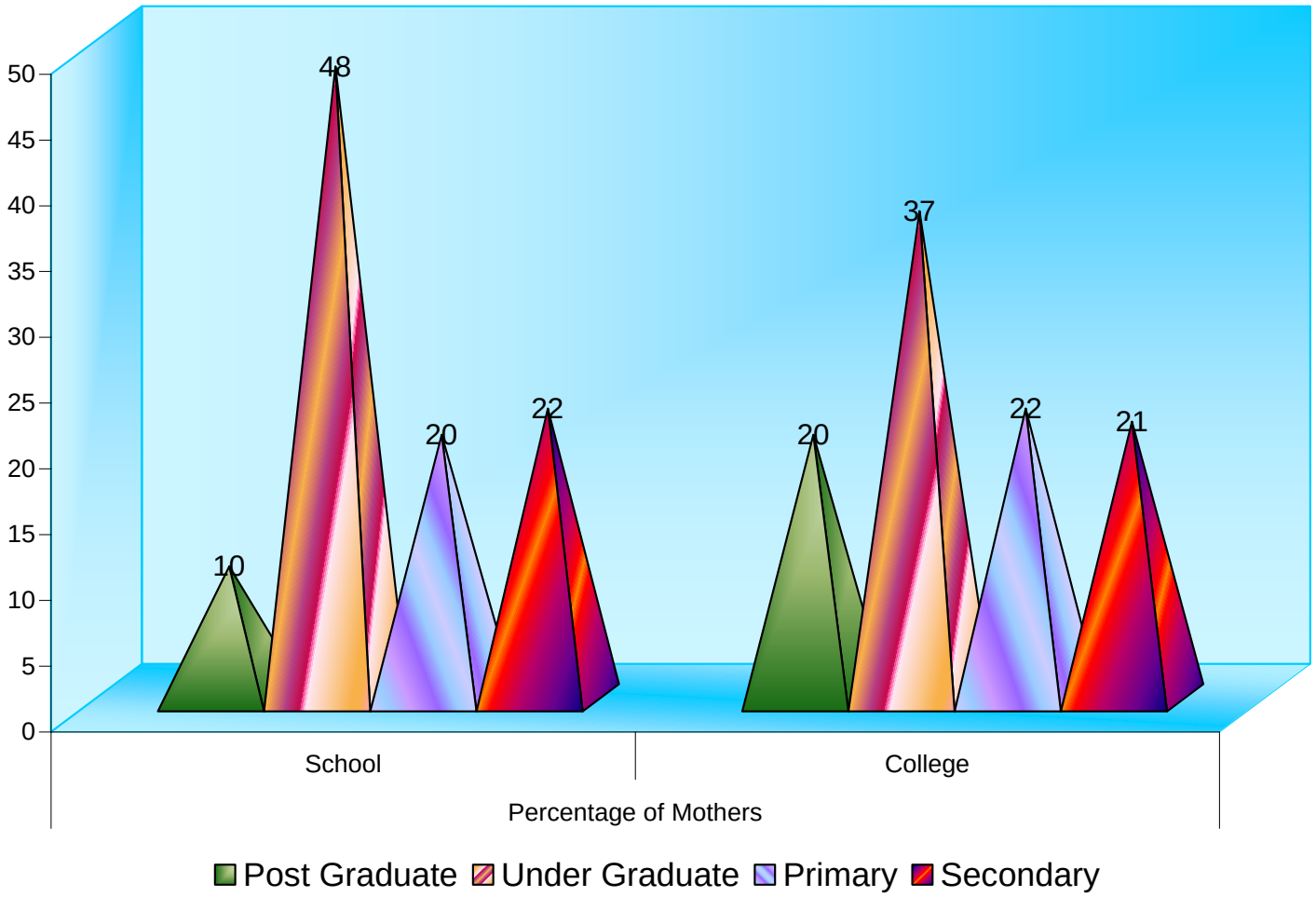


FIGURE 5

EDUCATIONAL STATUS OF MOTHERS

4. Occupational status of parents

The occupational status of the fathers of selected students are given in Table VII and Figure 6.

TABLE VII

OCCUPATIONAL STATUS OF FATHERS

Education	Percentage of Fathers	
	School	College
Business	36	20
Govt. Service	18	21
Doctor	14	21
Agriculture	11	20
Tailor	10	6
Lecturer	6	11
Teacher	5	2

A majority of fathers of school students involved in business whereas more than 20 per cent of fathers of college students each had taken up agriculture, business, government service and medical profession as their occupation respectively.

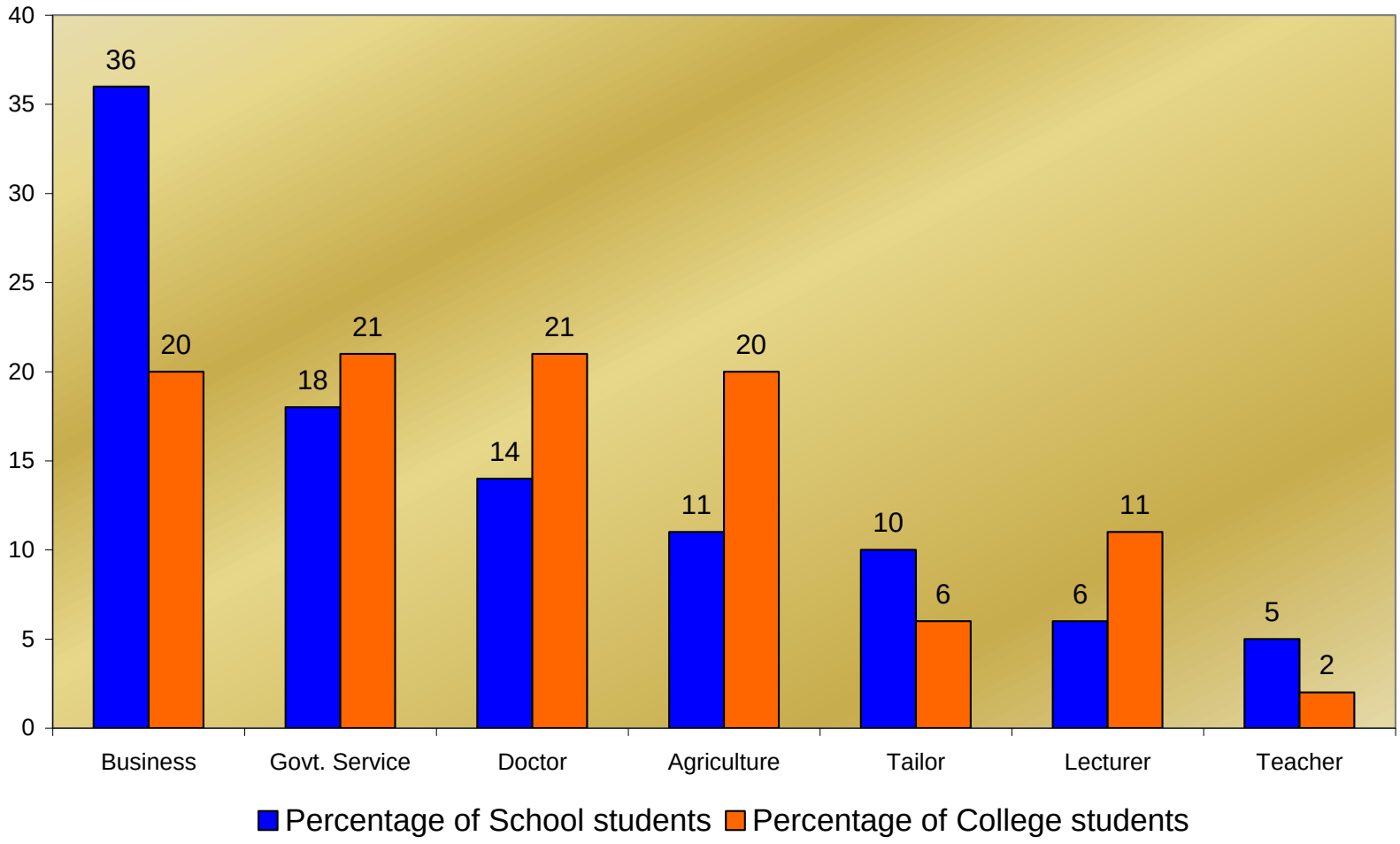


FIGURE 6

OCCUPATIONAL STATUS OF FATHERS

Table VIII and Figure 7 show the occupational status of the mothers of selected school and college students.

TABLE VIII

OCCUPATIONAL STATUS OF MOTHERS

Education	Percentage of Mothers	
	School	College
Teacher	28	16
Lecturer	10	15
Govt. Service	0	10
Business	10	9
Tailor	6	8
Weaver	20	16
Housewife	26	26

Women taking up outside job is increasing day by day. Even then 26 per cent of mothers of school students and 16 per cent of mothers of college students were full time homemakers. A majority of the mothers of both school and college students were in teaching profession.

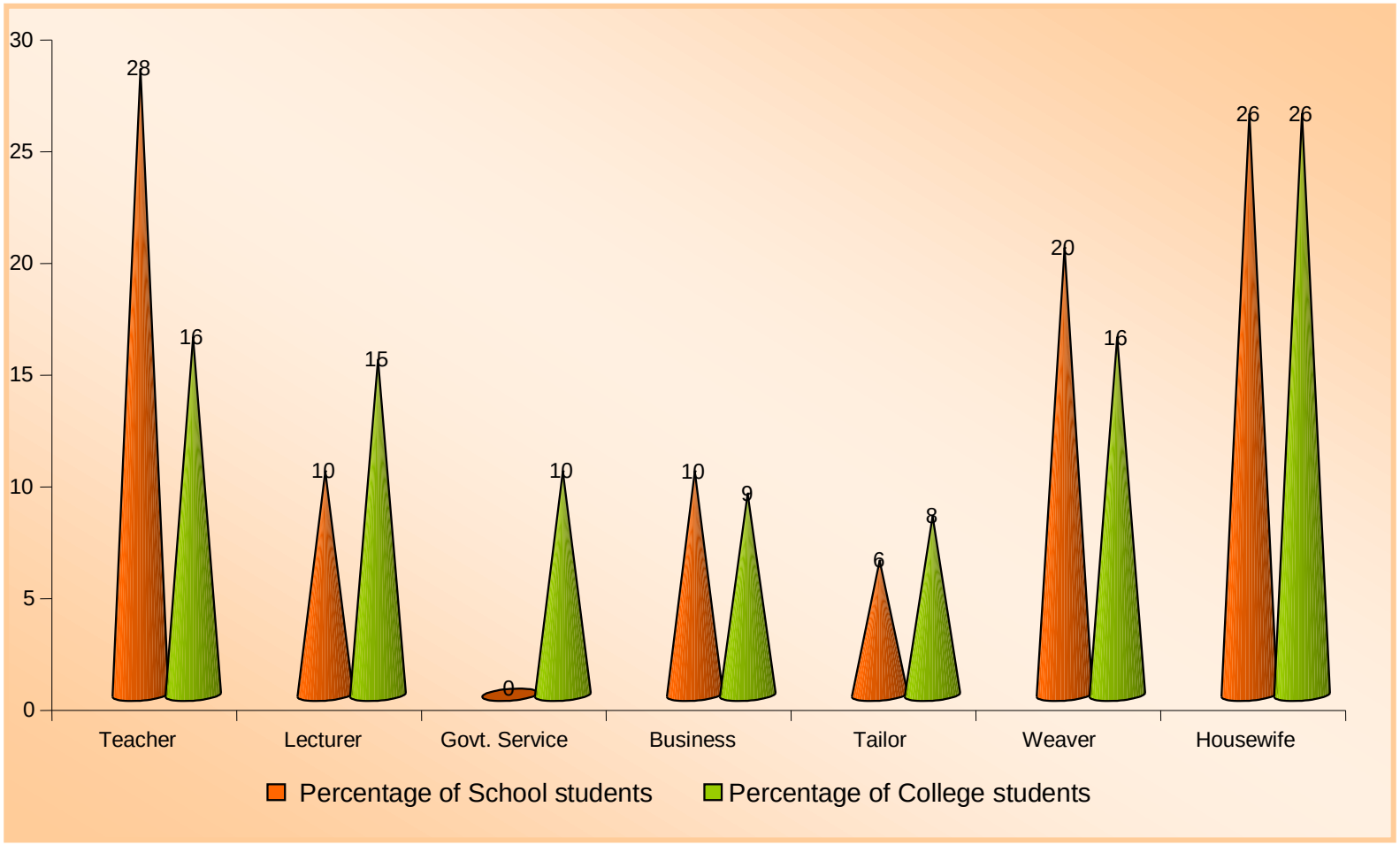


FIGURE 7

OCCUPATIONAL STATUS OF MOTHERS

5. Family income

Socio-economic status of any family is determined mainly by the income of the family which has direct impact on many other factors like education, housing, clothing and so on. Table IX and present Figure 8 the income of the selected families per month.

TABLE IX
FAMILY INCOME

Education	Percentage of Families	
	School	College
Low income (1000 - 5000)	29	20
Middle income (5000 – 15,000)	31	26
High income (15,000 above)	40	54

The Finance Minister of India pointed out that the per capital income of the families are slowly and constantly increasing. This result is a clear evidence to that statement. Because a majority of the families of school students (40 per cent) and college students (54 per cent) belonged to high income families, getting more than Rs.15,000 per month. Only 29 per cent of the families of school students and 20 per cent of college students belonged to low income group, getting less than Rs.5000 per month.

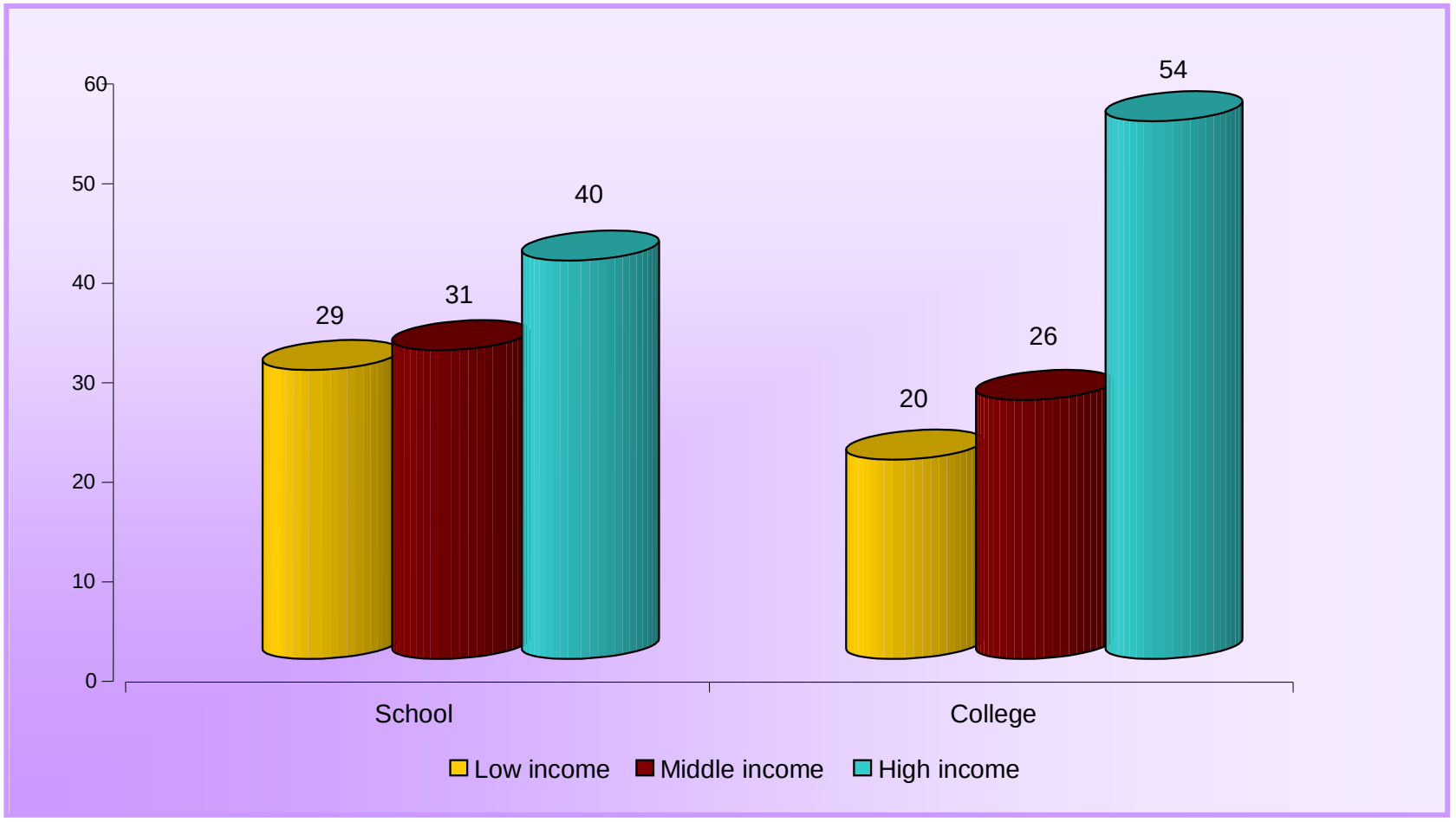


FIGURE 8

FAMILY INCOME

B. Degree of awareness of students

The Environmental Awareness Ability Scale was used to find out the extent and degree of awareness of students about environmental pollution and protection. It explores the understanding of people about the importance of environment in which they live. This was assessed based on the scores obtained by the students in Environmental Awareness Ability Measure (EAAM) and presented in Table X.

TABLE X
DEGREE OF ENVIRONMENTAL AWARENESS

Education	Percentage of Father		't' value
	School	College	
0-5 (Low)	53	27	2.062*
16 - 36 (Middle)	43	72	
37 – 51 (High)	4	1	

* significant at 5% level

It is very clear from the above Table that the knowledge of school students on environment was less when compared to college students. Nearly 50 per cent of school students got less score (0-15) whereas more than 70 per cent of college students secured middle score (16-36) in the Environment Awareness Ability Measure. The statistical analysis also revealed that there is a significant difference between school and college students at 5 per cent level in the Environment Awareness score before environmental education.

C. Factors influencing the awareness ability

This part of the study includes the following aspects :

1. Ordinal position versus Environmental awareness
2. Gender versus environmental awareness
3. Size of family versus environmental awareness
4. Fathers' education versus environmental awareness
5. Mothers' education versus environmental awareness
6. Fathers' occupation versus environmental awareness
7. Mothers' occupation versus environmental awareness
8. Family income versus environmental awareness

1. Ordinal position versus environmental awareness

Table XI Presents the influence of ordinal position in getting more scores in environmental awareness measure before conducting awareness programme.

TABLE XI

ORDINAL POSITION VERSUS ENVIRONMENTAL AWARENESS

Education	Percentage of Students							
	School				College			
	0-15	16-36	37-51	'F' value	0-15	16-36	37-51	'F' value
1	5	12	0	2.467 NS	8	28	0	1.506 NS
2	7	10	0		3	14	0	
3	15	11	0		12	14	1	
4	13	6	1		2	6	0	
5	13	4	3		2	10	0	
Total	**53**	**43**	**4**		**27**	**72**	**1**	

The above Table shows that the ordinal position did not have any impact on the scores obtained in EAAM before environmental awareness programme. The statistical analysis also revealed that the impact of ordinal position on scores obtained among school and college students is not significant.

2. Gender versus environmental awareness

Table XII shows the difference between boys and girls in the environmental awareness.

TABLE XII

GENDER VERSUS ENVIRONMENTAL AWARENESS

Gender	Percentage of Students							
	School				College			
	0-15	16-36	37-51	**'t' value**	0-15	16-36	37-51	**'t' value**
Boys	18	21	1	0.549 NS	13	22	0	1.653 NS
Girls	35	22	2		14	50	1	
Total	**53**	**43**	**3**		**27**	**72**	**1**	

The knowledge on environmental concepts of boys and girls were compared by environmental awareness scores. It was found out that there is no significant difference in environmental awareness ability between boys and girls of school as well as college.

3. Size of family versus environmental awareness

Whether the size of family had influence on the awareness on environmental concepts was analysed and given in Table XIII.

TABLE XIII

SIZE OF FAMILY VERSUS ENVIRONMENTAL AWARENESS

Size	Percentage of Students							
	School				College			
	0-15	16-36	37-51	'F' value	0-15	16-36	37-51	'F' value
Small	12	21	0		5	16	0	
Medium	21	14	1	**1.297**	11	28	0	**1.423**
Large	20	8	2	**NS**	11	28	1	**NS**
Total	**53**	**43**	**3**		**27**	**72**	**1**	

The statistical analysis shows that the size of family did not have significant influence on the environmental awareness ability among school as well as college students.

4. Fathers' education versus environmental awareness

Table XIV presents the relation between fathers' education and the environmental awareness of both school and college students.

TABLE XIV

FATHERS' EDUCATION VERSUS ENVIRONMENTAL AWARENESS

Education	Percentage of Students							
	School				College			
	0-15	16-36	37-51	'F' value	0-15	16-36	37-51	'F' value
Primary	11	0	0	3.014*	2	12	0	1.470 NS
Secondary	13	10	2		8	12	1	
Under Graduate	26	27	2		12	33	0	
Post Graduate	3	6	0		5	15	0	
Total	**53**	**43**	**4**		**27**	**72**	**1**	

The analysis clearly shows that there is a significant influence of fathers' education on the environmental awareness ability of school students at 5 per cent level whereas there is no significant influence of fathers' education on environmental awareness ability of college students.

5. Mothers' education versus environmental awareness

When a mother is educated, the whole family gets educated. Therefore the influence of mothers' education on environmental awareness was analysed and given in Table XV.

TABLE XV

MOTHERS' EDUCATION VERSUS ENVIRONMENTAL AWARENESS

Education	Percentage of Students							
	School				College			
	0-15	16-36	37-51	'F' value	0-15	16-36	37-51	'F' value
Primary	13	3	0	1.222 NS	6	17	0	0.679 NS
Secondary	14	10	0		7	14	0	
Under Graduate	23	21	0		9	28	1	
Post Graduate	3	9	4		5	15	0	
Total	**53**	**43**	**4**		**27**	**72**	**1**	

The statistical analysis revealed that there is no significant influence of mothers' education on the environmental awareness ability of school as well as college students.

6. Fathers' occupation versus environmental awareness

The relation between fathers' occupation and environmental awareness ability of students is shown in Table XVI.

TABLE XVI

FATHERS' OCCUPATION VERSUS ENVIRONMENTAL AWARENESS

Occupation	Percentage of Students							
	School				College			
	0-15	16-36	37-51	'F' value	0-15	16-36	37-51	'F' value
Lecturer	2	5	0		5	11	0	
Doctor	3	10	0		3	14	0	
Teacher	1	4	0		1	3	0	
Govt.Service	9	10	0	1.814 NS	8	20	0	1.069 NS
Tailor	7	2	0		0	3	1	
Business	22	10	4		6	9	0	
Agriculture	9	2	0		4	12	0	
Total	**53**	**43**	**4**		**27**	**72**	**1**	

The statistical analysis clearly shows that there is no significant relation between fathers' occupation and environmental awareness ability of both school and college students.

7. Mothers' occupation versus environmental awareness

Table XVII presents the relationship between mothers' occupation and environmental awareness ability of both school and college students.

TABLE XVII

MOTHERS' OCCUPATION VERSUS ENVIRONMENTAL AWARENESS

Occupation	Percentage of Students							
	School				College			
	0-15	16-36	37-51	'F' value	0-15	16-36	37-51	'F' value
Lecturer	4	5	0	1.222 NS	7	10	0	1.539 NS
Teacher	10	18	0		4	10	0	
Govt.Service	0	0	0		0	10	0	
Tailor	4	1	0		2	6	1	
Weaver	12	9	0		6	10	0	
House wife	19	5	2		5	20	0	
Business	4	4	2		3	6	0	
Total	**53**	**43**	**4**		**27**	**72**	**1**	

It is clear from the above Table that there is no significant relationship between mothers' occupation and environmental awareness ability of school as well as college students.

8. Family income versus environmental awareness

The relationship between family income and environmental awareness ability of selected students is shown in Table XVIII.

TABLE XVIII

FAMILY INCOME VERSUS ENVIRONMENTAL AWARENESS

Occupation	Percentage of Students							
	School				College			
	0-15	16-36	37-51	'F' value	0-15	16-36	37-51	'F' value
Low income	14	20	0	1.922 NS	7	20	0	0.546 NS
Middle income	15	12	2		6	21	0	
High income	24	11	2		14	31	1	
Total	**53**	**43**	**4**		**27**	**72**	**1**	

The statistical analysis clearly shows that there is no significant relationship between the family income and environmental awareness ability of school as well as college students.

D. Impact of awareness programme

Environmental awareness programme is to promote the awareness and understanding of the environment, its relationship with man and his activities. It is also aimed at developing responsible actions necessary for preservation, conservation and improvement of the environment and its components. With this in mind an environmental awareness programme was planned. From the results of the EAAM scores it was found out that both school and college students had less knowledge an environmental concepts. Therefore the awareness programme was planned for all selected students of school and college for whom the Environment Awareness Ability was measured.

The details of the outcomes of the environmental awareness programme are discussed under the following aspects:

1. Comparison of scores obtained by school and college students before and after environmental awareness programme.
2 Factors influencing the increase in scores
3. Role of gender on increase in scores
4. Change in attitude of students

1. Comparison of scores

Table XIX presents the scores obtained by both school and college students before and after environmental awareness programme.

TABLE XIX

COMPARISON OF SCORES

Scores	Percentage of Students				't' value
	School		College		
	Before	After	Before	After	
Low (0-15)	53	0	27	1	3.102**
Middle (16-36)	43	26	72	30	
High (37-51)	4	74	1	69	

** at 1 per cent level

It is clear from the above analysis that there is a significant improvement in the knowledge of students on environmental concepts after attending the environmental awareness programme. There is significant increase in scores at one per cent level among both school and college students.

2. Factors responsible for increase in scores

The increase in awareness score of selected school and college students after environmental awareness programme in comparison with the scores obtained before awareness programme was statistically analysed against selected variables and presented in the Table XX.

TABLE XX

FACTORS RESPONSIBLE FOR INCREASE IN SCORES

Annova for increase in score				
Factors	**School**		**College**	
	F	**Inference**	**F**	**Inference**
Ordinal position	0.373	NS	2.805	*
Size of family	0.139	NS	2.497	NS
Fathers' education	3.887	*	2.175	NS
Mothers' education	5.619	**	2.277	NS
Fathers' occupation	1.872	NS	2.428	*
Mothers' occupation	1.272	NS	1.715	NS
Family income	1.938	NS	2.042	NS

It is interesting to see from the above Table that only very few factors were responsible for increase in scores after environmental awareness programme. Among school students fathers' education had significant influence on increase in scores at 5 per cent level whereas mothers' education had significant influence on increase in score at one percent level. Among college students ordinal position and fathers' occupation had significant influence on increase in scores at 5 per cent level.

3. Role of gender on increase in score

Table XXI shows the difference between boys and girls on increase in scores after environmental awareness programme when compared to scores obtained before awareness programme.

TABLE XXI

ROLE OF GENDER ON INCREASE IN SCORE

Gender	Percentage of Students													
	School							College						
	0-15		16-36		37-51		't' value	0-15		16-36		37-51		't' value
	B	A	B	A	B	A		B	A	B	A	B	A	
Boys	18	0	21	11	1	28	1.455 NS	13	0	22	15	0	21	0.604 NS
Girls	35	0	22	15	2	46		14	1	50	15	1	48	
Total	53	0	43	26	3	74		27	1	72	30	1	69	

The statistical analysis revealed that there is no significant difference among boys and girls of selected school and college on increase in scores after attending environmental awareness programme.

4. Environmental concepts imbibed

Fifty per cent of school and college students who attended the environmental awareness programme were approached after three months to find out the environmental concepts imbibed by them. The findings are given in Table XXII and Figure 9.

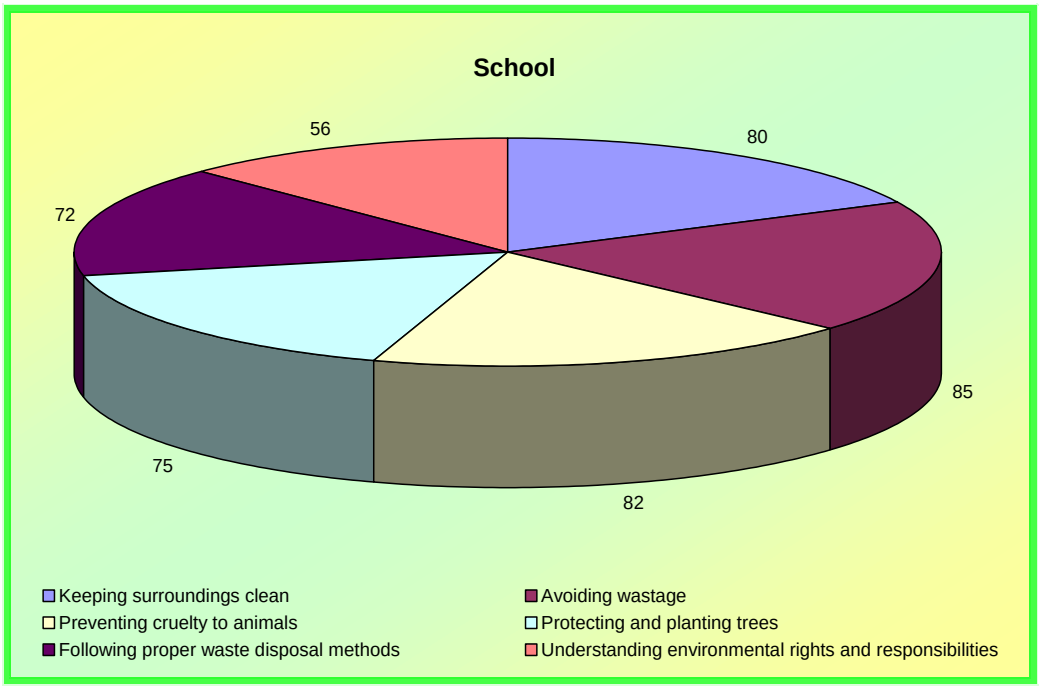
TABLE XXII

ENVIRONMENTAL CONCEPTS IMBIBED

Education	Percentage of Father	
	School N=50	**College N=50**
Avoiding wastage	85	92
Preventing cruelty to animals	82	80
Keeping surroundings clean	80	90
Protecting and planting trees	75	80
Following proper waste disposal methods	72	76
Understanding environmental rights and responsibilities	56	66
AVERAGE	**75**	**81**

* Multiple response

It is heartening to see from the above Table that the positive concepts developed by school as well as college students after environmental awareness programme. On an average 75 per cent of school students and 81 per cent of college students developed positive attitude towards important environmental concepts.



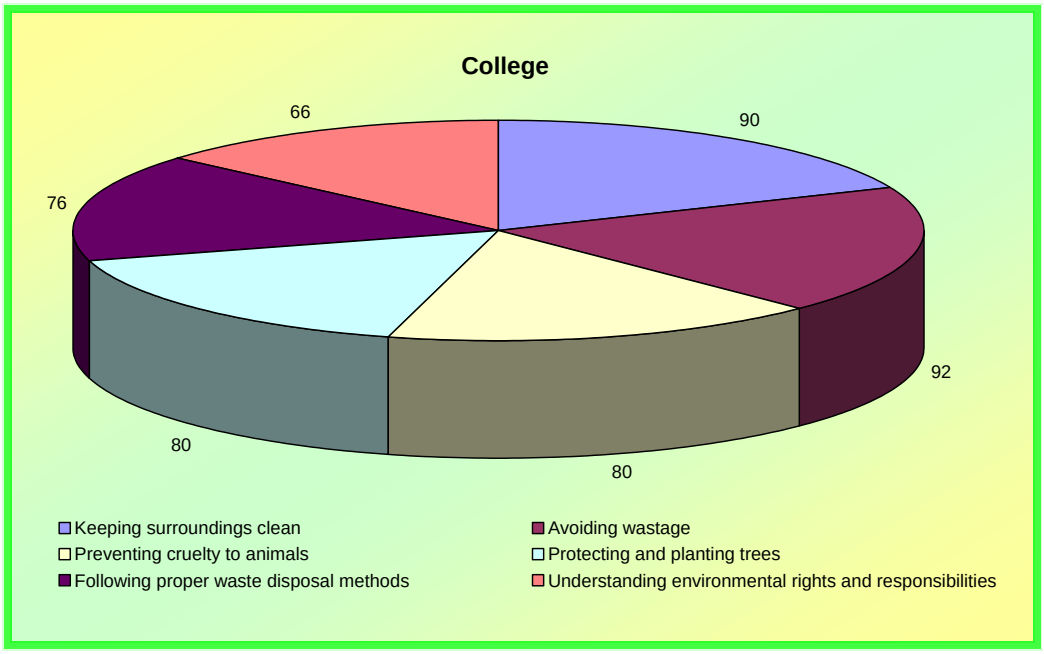


FIGURE 9

ENVIRONMENTAL CONCEPTS IMBIBED

SUMMARY AND CONCLUSION

V. SUMMARY AND CONCLUSION

The protection and conservation of environment is the responsibility of all the people. No single individual nor the factor can faster remedial measures for its proper protection. So it can be suggested that the individual, the society and the system of education in all its forms should contribute for the protection of the environment. It is rather an "Umbrella concept" to protect the environment. With this in mind a study on "Environment Awareness Ability Among Students in Imphal" had been taken up with the following objectives to**:**

- Measure the extent and degree of awareness of students on environmental pollution and protection
- Analyse the factors influencing the awareness ability
- Create awareness among students on environmental concepts, and
- Study the impact of the environmental awareness programme.

Two hundred students, 100 each from school and college were selected using purposing sampling method. Environment awareness ability of selected students were studied using "Environment Awareness Ability Measure (EAAM) Scale published by National Psychological Corporation, Agra, with little modification along with personal profile of the students. Later an environmental awareness programme was systematically planned to create awareness on environmental concepts, protection and conservation for both school and college students. The same EAAM scale was readministered to assess the improvement in knowledge through increase in scores after attending environmental awareness programme. After three months interval the same students

were approached to find out change in habit towards certain environmental concepts using simple check list.

The findings of the study are summarized below:

A. Personal profile

Along with the EAAM scale the detail on family background was collected. The detail are as follows :

- Majority of students were either first child or third child in the family. Single child concept was not there in the selected area.
- Nearly 50 per cent of fathers of school and college students were graduates.
- Majority of mothers of school as well as college students were also graduates.
- Majority of fathers of school students involved in business. Whereas the fathers of college students had taken up Agriculture, business, government service and medical profession as there occupation.
- The majority of mothers of both school and college students were in teaching profession.
- Majority of the families of school students (40 percent) and college students (54 percent), belonged to high income family getting more than Rs.15,000 per month.

B. Degree of environmental awareness of students

- The degree of environmental awareness of students was assessed using Environmental Awareness Ability Scale. The results are given below :

- The knowledge of school students on environmental concepts was less when compared to college students. There was a significant difference between school and college students at 5 per cent level in the environmental awareness score before environmental awareness programme.

C. Factors influencing the awareness ability

- There was no significant influence of ordinal position on environmental awareness ability among both school and college students.

- There was no significant difference in environmental awareness ability among boys and girls of school as well as college.

- The size of family did not have significant influence on the environmental awareness ability among school as well college students.

- There was significant influence of fathers' education on environmental awareness ability of school students at 5 per cent level, whereas there was no significant influence on college students.

- There was no significant influence of mothers' education on the environmental awareness ability of school as well as college students.

- There was no significant relation between fathers' occupation and environmental awareness ability of both school and college students.

- There was no significant relation between mothers' occupation and environmental awareness ability of school and college students.

- There was no significant relationship between the family income and environmental awareness ability of school as well as college students.

D. Impact of awareness programme

An awareness programme was planned for all selected students of school or college because the environmental awareness ability of surveyed students was below average. The outcomes of environment awareness programme are as follows :

- There was a significant improvement in the knowledge of students on environmental concept after attending the environmental awareness programme. There was significant increase in score at one per cent level among both school and college students.

- Both fathers' education (5 per cent level) and mothers' education (1 per cent level) had significant influence on increase in score among school students.

- The ordinal position and fathers' occupation had significant influence on increase in score at 5 per cent level among college students.

- After three months of environmental awareness programme 50 percent of school and college students who attended awareness programme were approached and enquired about environmental concepts imbibed. On an average 75 per cent of school students and 81 per cent of college students developed positive attitude towards important environmental concepts by following them in day to day living.

RECOMMENDATIONS :

The recommendations emerged out of the study are as follows :

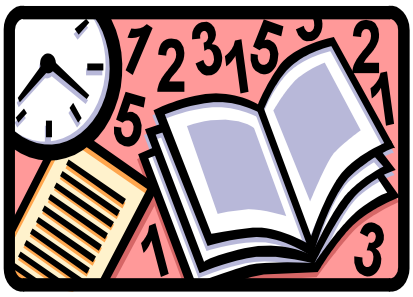
- New education is essential to understand and tackle environmental problems. Curriculum must be constructed with definite subject taking into account the class and age of students both in the formal and non-formal system. It is better to suggest that the government itself can form course content for various groups and make it a compulsory subject to everybody by giving more importance to individual's role to protect and preserve environment.

- Case-study must be construed at identified areas to find out specific problem of those areas and to suggest remedial measures.

- The teachers of different levels must first be educated on the need for environmental protection and to prevent degradation and conservation.

- All must practice and promote good civic sense and hygiene such as enforcing no spitting of tobacco chewing, no throwing garbage on the road, no smoking in public places, no urinating and defecating in public places.

So, on the whole, for the proper protection and management of environment the "Umbrella Concepts" of education, covering all the related disciplines, using the services of all people and conducting case studies and research will to some extent serve the purpose of environment protection. Apart from this the government should take it as priority area, like, the family planning programme and total literacy compaign, for proper management of environment.



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APPENDICES

APPENDIX I

AVINASILLLINGAM UNIVERSITY FOR WOMEN

COIMBATORE – 641043

ENVIRONMENT AWARENESS

ABILITY MEASURE SCALE

A.1). Name of the investigator:- ……..

B.2.) Name of the interviewee:- ……..

C.3.) Residential address:- ……...

D.4.) Level of education:- ……

E.5.) Ordinal position:- ……

1. ☐ 2. ☐ 3. ☐ 4. ☐ 5. ☐

F.6.) Family background :-

Relationship	Age	Education	Occupation	Income
a) Father b) Mother c) Brother 1. 2. 3. d) Sister 1. 2. 3.				

INSTRUCTIONS

Given forth are fiftyone statements which you should read one by one cell of the two respond to each statement by marking tick mark (3) in any one and responses- Agree or Disagree.

Do not spend too much time on any one item. Your responses should be spontaneous as well as accurate because these statements reflect your level of awareness and sensitivity about the environment you live in.

S.NO	STATEMENTS	RESPONSE	
		AGREE	DISAGREE
1	Man is responsible mainly for environmental pollution.	☐	☐
2	Pollution is more in developing countries than that in developed countries.	☐	☐
3	Large scale industrialization is a significant cause of environmental pollution.	☐	☐
4	Mass-movement is a must for protection of environment.	☐	☐
5	Big dams are essential for production of hydroelectricity.	☐	☐
6	Special attention must be given to the non-conventional sources of energy, i.e., wind energy, solar energy etc.	☐	☐
7	Communication-media have vital role to make people aware of their environments.	☐	☐
8	There must be a planned programme to grow renewable and alternative source of energy.	☐	☐
9	Use of wind energy in producing electricity enhances pollution.	☐	☐
10	Use of nuclear reactor is not desirable in view of pollution.	☐	☐
11	Spray of synthetic fertilizers and pesticides should be banned.	☐	☐
12	Use of lead-free petrol is desirable.	☐	☐
13	Smoking at public places should be strictly prohibited.	☐	☐
14	Increasing population is the main cause of environmental pollution.	☐	☐
15	There should be balance between available energy sources and their use.	☐	☐
16	Energy sources like coal, petrol etc. should be used at large scale.	☐	☐
17	Green-house effect is responsible for the increment of temperature of biosphere.	☐	☐

S.NO	STATEMENTS	RESPONSE	
		AGREE	DISAGREE
18	Leather and fertilizer industries are responsible for water pollution.	☐	☐
19	Tree plantation is essential for the regulation of environmental temperature.	☐	☐
20	Ozone layer in biosphere is essential for our existence.	☐	☐
21	Ban on nuclear test is desirable for preventing environmental pollution.	☐	☐
22	All should take active part in community cleanliness drive.	☐	☐
23	Fertilizer factories should be located near the housing colonies.	☐	☐
24	Our vehicles should be checked time to time for preventing air pollution.	☐	☐
25	Nuclear wastes should be disposed off with utmost care.	☐	☐
26	To abide by family welfare programme is the duty of every citizen.	☐	☐
27	In order to increase food-grains agriculture should be accelerated by removing forests.	☐	☐
28	Use of solar energy is pollution-free.	☐	☐
29	Rapid deforestation unbalances the rain-cycle of a place.	☐	☐
30	Biofertilizer should be used for maintaining the fertility of soil.	☐	☐
31	Catalytic converter must be used in the vehicles for preventing smoke pollution (air pollution).	☐	☐
32	Deforestation is the main cause of soil-erosion and flood.	☐	☐
33	Use of narcotics and drugs (Opium, charas, cocaine etc.) should be banned.	☐	☐
34	Every year from 1st to 7th October, Forest - conservation week must be observed with gaiety.	☐	☐

S.NO	STATEMENTS	RESPONSE	
		AGREE	DISAGREE
35	Protection of rare animals like leopard, rhino and Kashmiri stag is essential.	☐	☐
36	Paper should be used properly with regard to forest conservation.	☐	☐
37	Mixed-cropping and crop-rotation are proper methods for upkeeping the fertility of soil.	☐	☐
38	Noise-pollution is harmful for our health.	☐	☐
39	Fume emitted from vehicles and factories is responsible for acid-rain.	☐	☐
40	Silencers must be used in vehicles.	☐	☐
41	A1cohol producing plants like sugarcane, potato etc., should not be grown as substitute of petrol-fuel.	☐	☐
42	Indians have more percentage of D. D. T. in their body in comparison to the people of other countries.	☐	☐
43	White-revolution played an important role in resolving malnutrition-problem.	☐	☐
44	Forestation must be there in 1/3 of the net area of India.	☐	☐
45	Unpolluted water is essential for life.	☐	☐
46	Community immunization programme should be launched to prevent communicable diseases.	☐	☐
47	Production of refrigerators and jet aircrafts should be stopped for preserving the Ozone layer.	☐	☐
48	Fall in mortality rate and increment in average life-span are the prime causes of population growth.	☐	☐
49	Attention should be given on the productivity of cattle.	☐	☐
50	Satellites and rockets should not be launched for preventing space-pollution.	☐	☐
51	Increase in Green-house gas is a great danger to world community.	☐	☐

APPENDIX II

STATISTICAL ANALYSIS

SCHOOL
Environment Awareness Score – Before

Ordinal Position	Mean	N.	St. Deviation
One	21.7059	17	8.8584
Two	19.4706	17	10.3145
Three	15.9615	26	8.7521
Four	15.7143	21	10.1644
Five	17.8421	19	12.3974
Total	17.8400	100	10.1461

ANOVA for Environment Awareness Score – Before

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	48.902	4	121.475	1.189	Ns
Within Groups	9705.538	95	102.164		
Total	10191.440	99			

Group Statistics

	Gender	N	Mean	Std.Deviation
Environment Awareness Score-Before	Male	40	18.5250	8.9614
	Female	60	17.3833	10.9143

T – test for Equality of Means

t	df	Sig.
.549	98	Ns

	Mean	N	Std.Deviation
Environment Awareness Score-Before	17.8400	100	10.1461
Environment Awareness Score-after	42.7900	100	6.5216

Paired Sample Test

	Mean	Std. Deviation	t	df	Sig.
Environment Awareness Score-Before Environment Awareness Score-after	-24.9500	7.7582	32.160	99	**

		Environment Awareness Score - Before			Environment Awareness Score - Before			Increase in Awareness score		
		Mean	S.D.	No.	Mean	S.D.	No.	Mean	S.D.	No.
Ordinal Position	One	21.71	8.86	17	46.65	4.51	17	24.94	8.32	17
	Two	19.47	10.31	17	43.29	6.28	17	23.82	5.85	17
	Three	15.96	8.75	26	41.81	5.25	26	25.85	8.36	26
	Four	15.71	10.16	21	41.62	5.84	21	25.90	6.52	21
	Five	17.84	12.40	19	41.53	9.25	19	23.68	9.48	19
TOTAL		17.84	10.15	100	42.79	6.52	100	24.95	7.76	100

ANOVA for increase in awareness score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	92.039	4	23.010	.373	Ns
Within Groups	5866.711	95	61.755		
Total	5958.750	99			

COLLEGE

Total Family Income

	No.	Percent
High	54	54.0
Middle	26	26.0
Low	20	20.0
Total	100	100.0

Environment Awareness Score – Before

Ordinal Position	Mean	N.	St. Deviation
One	22.5278	36	8.7325
Two	22.4444	18	7.3822
Three	17.4815	27	10.0321
Four	18.8750	8	12.0409
Five	20.5455	11	6.0227
Total	20.6400	100	9.0292

ANOVA for Environment Awareness Score – Before

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	481.280	4	120.320	1.506	Ns
Within Groups	7589.760	95	79.892		
Total	8071.040	99			

Group Statistics

	Gender	N	Mean	Std.Deviation
Environment Awareness Score-Before	Male	36	18.6667	7.7238
	Female	64	21.7500	9.5651

T – test for Equality of Means

t	df	Sig.
1.653	98	Ns

Paired Sample Statistics

	Mean	N	Std.Deviation
Environment Awareness Score-Before	20.6400	100	9.0292
Environment Awareness Score-after	42.2200	100	6.7294

Paired Sample Test

	Mean	Std. Deviation	t	df	Sig.
Environment Awareness Score-Before Environment Awareness Score-after	-21.5800	7.6027	-28.385	99	**

		Environment Awareness Score - Before			Environment Awareness Score - Before			Increase in Awareness score		
		Mean	S.D.	No.	Mean	S.D.	No.	Mean	S.D.	No.
Ordinal Position	One	22.53	8.73	36	41.33	7.53	36	18.81	7.44	36
	Two	22.44	7.38	18	43.56	7.00	18	21.11	6.88	18
	Three	17.48	10.03	27	41.78	6.19	27	24.30	7.05	27
	Four	18.88	12.04	8	44.38	6.28	8	25.50	8.78	8
	Five	20.55	6.02	11	42.45	5.41	11	21.91	7.38	11
TOTAL		20.64	9.03	100	42.22	6.73	100	21.58	7.60	100

ANOVA for increase in awareness score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	604.405	4	151.101	2.805	*
Within Groups	5117.955	95	53.873		
Total	5722.360				

Thank You