CHAPTER - 1

INTRODUCTION
AND CONCEPTUAL
FRAMEWORK

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1.1 Background of the study

The recent raging discussion on global warming and climate change is directly related to the protection of environment. The rapid deterioration of our environment and the consequent ill-effects are all due to excessive and undesirable human activities. The very survival of humankind is at stake following ecological degradation. The earth summits and conferences on climate change involving global political leaders and decision makers point out to the importance of environmental protection and measures initiated.

The concept of environment encompasses all the living and non-living organisms which we find in our surroundings like plants, animals, land, water, air and all others. Modernized life-style and excessive population growth have brought in unalterable damage to our eco-system. The material facilities of the earth, a vital force for the support of life systems, have taken millions of years of evolution to the present stage through a natural process. Perhaps, damages to these systems began with the dawn of civilization as it needed the natural resources for modernized development. The Industrial Revolution of the modern times and the catch slogan, from farms to factories, provided material comforts and employment to the masses, no doubt, but the damage it has caused to the environmental equilibrium is unfathomable.

India was the first country where environment began to be treated less as an abstraction, a thing to be looked at and enjoyed, and more as a concrete source of sustenance. Tribal societies across India had all along treated their immediate environment as part of their living ethos, an integral aspect that has a right to be nurtured
and nourished. The understanding of Bishnoi Community to treat forests as a living being in line with their vegetarian mode of food habits forced them to sacrifice more than 300 lives to the slaughter of king’s forces as they hugged the trees to save these from felling. Not only them, Even in 3rd century B.C. king Ashoka had made it a point not to kill even trees as he had made vegetarianism as a way of life leading to non-violence mode of existence.

While examples of treating environment as an integral part of human society galore in Indian tradition and literature, educational philosophy, from Kalidasa and Bhabhabhuti down to Rabindranath, the idea of treating environment as an abstract force facing threat has been very much a part of Western discourse on environment. In the west, while the radiation of nature became apparent with the arrival of 20th century, the concern for nature at the beginning was essentially a life-style issue. Unlike India, the perception of nature was never really integrated into the inner core of Western Philosophy or Education. It was a thing to be viewed, enjoyed and nurtured for the sake of its own beauty for the Westerners, while Rabindranath in India was talking almost the compulsion of including the lessons of life from nature and getting involved in a dialogue with nature.

This essential differences between Western approach towards nature and Indian or Oriental approach towards nature in the later part of last century converged at the point of saving the environment, altogether initially for different reasons but the apparent threat to nature and altogether leading to the probable extinction of animal life on the planet has now led to development of nearly a same kind of concern for nature across
the globe. Later part of twentieth century reached a near impossible political consensus on saving the planet though the road to achieve that purpose is still fraught with many shades of confusion as to what the best way would be to save the planet.

The understanding about environmental problems that challenge Indian society is significantly different from Western developed societies not only because the consciousness about erosion of natural resources started as a life style issue there or because of the differences in philosophical strands, but rather for the fact that nature in Indian context has always been seen not only as a source of pleasure, but also as a common property resources (CPR). For thousands of years, Indian society or the impoverished sectors of the society have always looked upon nature as one of the major sources of earning their livelihoods. From cattle grazing to burning wood, from seasonal fruits and vegetables to free meat, forests and jungles have remained the last source of food for India’s penniless society. With the growing poverty as an offshoot of population explosion, the downtrodden in India have increasingly become dependent on forests in terms of their livelihood. It has been seen by environmental economists like Barrett (1998) that a household usually has assets like human, biophysical, constructed and environmental capital. In case of an exogenous shock, like natural calamity, the households can return to those assets and hope to survive further.

The poverty dimension of Indian societies has forced the nature to be used at random and is nearly equally responsible along with industrial vagaries for destroying the natural resources in the country. Common property resources act as an insurer in a moment of crisis and this has further complicated the already endangered situation left
by the proponents of industrialization. In the second half the last century, the endeavor to convert India into an industrialized nation took a heavy toll on its natural resources, both below the ground and above it. The borrowed idea of generating electricity through the construction of large dams has been able to kill India’s rivers and turned out to be the most disastrous for a riverine country whose agricultural incomes still provide for nearly 30% of the G.D.P. Rivers in India have become dry, full of salinated waters and dependence of big farmers on deep irrigation has made India’s soil full of Arsenic and similar elements. Not only the rivers are going dry, over dependence on pesticides has made the soil increasingly barren and a cattle breed are looking for food freed of carcinogenic elements. Rachel Carson’s book ‘Silent Spring’ had worked as a harbinger of environmental consciousness in the west, painting in detail how the entire set of animal society including humans are becoming full of pesticides but that consciousness and the consequent alarm have fallen on deaf ears in the context of Indian society.

**Major challenges:**

**Poverty and Environment:**

The major challenges before the Indian society are manifold and are significantly multiplied in the context of Northeast. Essentially Indian society is deeply divided between urban centers and rural habitations. Both are remarkably populated by poorer sections of the society. The preponderance of poor in both the areas in fact obliterates the rural-urban divide in India. It has been found that forest land in rich countries is growing at 0.5
percent while it grows at 0.1 percent rate in poorer countries. It has also been proved that access to purified water and sanitation results in 18 times less child mortality rates (Poverty and Environment International Bank for Reconstruction and Development, The World Bank, 2008). The burden of the poor on the Indian environment has been accused to be too huge. Poor people have also been accused in India as a threat to the maintenance of environment or to the use of it as a source for sustainable livelihood. It is a fact that urban centres are increasingly becoming unlivable due to the influx of migrant workers to the urban slums or poor people living at the rural-urban continuum due to a certain extent are a threatening proposition for the environment in India. While the poor have been known to be dependent on common property resources (CPR), but at the same time the people living in close proximity of wildlife has never been known to be a threat to the sustenance of common property resources. In fact it is a part of their life cycle to use CPR as an insurer against the hard times. There are examples like Naga societies which consider cutting off trees in close vicinity of the village or home as ominous because it brings disease according to their myth. Biswas, G. (2007) argues that “in traditional societies the relation between ecology and morality has a deep structure in their life world as this relation is not merely a conjunction of two alien concepts, instead it is based on a philosophy of life that straightway precludes any form of anonymity towards nature, community and the world conceived”. There has been a sustained effort to put the onus for the degradation of environment in Indian context on the poor, but it only half tells the story because the major damage has been caused by the rampant industrialization and mindless exploitation of natural resources by organized sector.
Pollution and climate change:

Air and water pollution and their contribution to global warming has been much in debate in India in recent times. The change in weather, strike of cold waves in winter, summer heat in an unprecedented measure, shortfall in rain, sudden and frequent cloud bursts in different corners of the country and arid zones getting huge rains or agrarian belts turning arid have all now become part of the staple discourse on air and water pollution leading to global warming. Global warming and consequent rise in water level due to melting of glaciers or reduction of the height of Himalayan peaks or water pollution causing the extinction of certain sea species are now the catchwords in popular literature on environment in Indian rural pockets also. While the air pollution is essentially a contribution of vehicular traffic and industrial emission, untreated industrial effluents has been able to cause irreparable damage to India’s water resources.

Though the discussion on global warming became a part of international environmental discourse since Rio Summit in 1992, India till the last Earth summit in 2009 had escaped its responsibility as a developing nation. It has been presented by the environmentalists world over that “the concentration of Carbon dioxide in the earth’s atmosphere was about 280 parts per million by volume (ppmv) in 1750, before the Industrial Revolution began. By 1994, it was 358 ppmv and rising by about 1.5 PPMv per year. If emissions continue at the 1994 rate, the concentration will be around 500 PPMv, nearly double the pre-industrial level, by the end of the twenty-first century” (Patwardhans, 2000 Environmental Issues in India, A Reader, Ed- Rangarajan, M, 2007 PP551). The most serious implication of air pollution in India has been an upward movement of temperature.
in summer time killing thousands of poor. Though its relations with increasingly coldest winters in different parts of the country are as yet unestablished, but the weather pattern in India is undoubtedly in for serious changes resulting not only in the loss of lives, but also with a far more serious ramifications for production. Industrial affluent and the fact that nearly 50% of Indian population is yet to be able to use sanitized latrine have made lives of water animals in Indian coasts and rivers miserable. Major rivers in the country are hugely polluted and lives of fisherman and the fishing business are poised for a toss. Patwardhan, (2007, 2000), claims, “for India, the climate change issue has several ramifications: First, although India does not currently have any obligations under the convention to reduce its greenhouse as emissions, international pressure will keep increasing in this regard. It is therefore important for us to develop a clear understanding of our emission inventory. We also need to document and analyze our efforts in areas such as renewable energy, wasteland development and aorestation- all of which contribute towards either reducing Carbon dioxide emissions or increasing Carbon dioxide removal from the atmosphere. Considering that these efforts may often be undertaken for a variety of reasons not directly related to global warming, but yet have benefits as far as climate change is concerned, we may be able to leverage such efforts in the international context (ibid, PP 556-557).

In a nation seriously starved of any political will and social mechanism to take care of the future citizens, it is amazingly indiscreet to expect a proper mechanism to tackle pollution as a national emergency. The rising mercury level and its consequent impact can lonely be felt by India’s environment and future can be disastrous
Land erosion and degradation:

Land degradation is becoming increasingly a complicated issue in India. India has one of the lowest forest covers in the whole world as well as one of the highest cattle populations in the whole world. Felling of trees along the riverbeds or seashores has made land erosion in planes as well as joom cultivation in the hills is now a major concern and it has been a major reason for landslides in the hills. Land erosion and degradation have made India’s land resources shrink to a considerable extent and that only foretells disaster for both cattle population and agrarian production.

Sharma, (1999) posits that the “challenge is that of reorienting institutions, attitude and infrastructure which were essentially built up during the colonial times, to suit conditions and needs of today. This change must take into accounts India’s Traditions for resource use managements, education etc. The change needs to come about in education in attitudes, in administrative procedures and institutions, for it affects the way people view technology, resources and indeed development itself” (PP.392-393).

Biodiversity:

India happens to be one of the most important mega diversity zones and the Northeastern part of India happens to be one of the seven bio-diversity hot spots in the world and this biodiversity is under a serious threat with urbanization spreading its tentacles everywhere. India is estimated to be a home to 75000 species of animals (fauna) and 45000 species of plants (flora) and though first recorded conservation effort started in India, its flora and fauna are now looking for cover. The threat in the context of
Northeast is even sharper as a significant section of the tribes living in this region are ill equipped to handle the loss of common property resources which have given them food at the times of crisis since primitive days.

**Environmental Governance and Justice:**

As the onslaught on environment is on the rise with the passage of time, the ideas of environmental governance and justice are getting prominence. Misra (1991) presented four basic requirements of environmental management as recognized by him are (i) impact of human activities on the environment (ii) value system (iii) plan and design of sustainable development and (iv) environmental education (Ecology and Environment, P.D. Sharma, 1999, PP 390).

While he has talked about value system and environmental education, the rest two being administrative procedure, one can conclude that value system can best be reinforced through environmental education. While Sharma stresses on strengthening of values and re-emphasizing environmental issues through environmental education, the issue of environmental justice is gaining momentum worldwide. Environmental justice “Connected the safety and quality of the environment where people lived, worked, played, and learned with concerns for social economic justice. Environmental justice referred to the basic right of all people to be free of poisons and other hazards. At its core, environmental justice also was a vision of the democratic inclusion of people and communities in the decisions that affected their health and well being”. (Cox, R, 2010, PP-55).
Reorienting of institutions in an effort to be employed to nurture environment for a better globe has to incorporate in its vision a fair amount of the sense of justice, the understanding that people need to be involved at the decision making level allowing then to internalize the eco-ethics and that can be possible only through a reinforcement of eco-ethics through environmental education. Else, the entire administrative procedure and jugglery of political terms are unlikely to yield nothing.

1.2 Environmental education: A conceptual framework

Alarmed by the speedy deterioration of environment around us, the Supreme Court of India, in a landmark judgment, directed the union government as well as state government to teach environment as subject of study in all schools and colleges. True, environmental education is a new area of study in the education sector and should be of great value to teachers, educators and students. Historically, the need for the knowledge on environment was not felt until the nineteenth century. The natural disasters that followed the Industrial Revolution in England and the two world wars, the atomic onslaught on Japan and the series of atomic tests by various countries have all contributed to a rethink on developmental priorities. The Bhopal gas tragedy in India should be an eye opener for everyone associated with developmental planning.

There are, of course, a number of varied definitions of environmental education. Another definition is “Environmental education is the process of recognizing values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the inter-relatedness among man, his culture and his biophysical surroundings. Environmental education entails practices in decision making and self-
formulation of code of behavior about issues concerning environmental quality”, (The Nevada Conference of the International Union for the Conservation of Nature and National Resource, 1970). “Environmental education means the educational process dealing with man’s relationship with his natural and man-made surroundings, and includes the relation of population, pollution, resource allocation and depletion, conservation, transportation, technology and urban and rural planning to the total human environment” (the United States Environmental Education Act, 1970). “Environmental Education is a way of implementing the goals of environmental protection. It is not a separate branch of science or field of study. It should be carried out according to the principles of lifelong integral education.” (UNESCO Seminar at Jammi, 1976) The best insurance for the environment is a commitment on behalf of the public to prevent the deterioration of air, water and land. (First report of the British Royal Commission on Environmental Pollution, 1971) “Environmental education appears to be a process that equips human beings with awareness, knowledge, skills, attitudes and commitment to improve environment.” (Mishra, 1993). “Environmental education refers to the awareness of physical and cultural environment and perceives its relevance for real life situation. The problems and issues are to be identified. The imbalances of environment are to be improved in view of sustainable development.” (R.A.Sharma, 1996)

“Environmental education is a learning process that increases people’s knowledge and awareness about the environment and associated challenges, develops the necessary skills and expertise to address the challenges, and foster attitudes, motivations and commitments to make informed decisions and take responsible action.” (UNESCO, Tbilisi Declaration, 1978)
1.3 Objectives of environmental education

The first inter-governmental conference on environmental education held in Tbilisi in the erstwhile USSR, in 1977, organized by UNESCO, facilitated the formulation of objectives of environmental education for both formal and non-formal education at all levels, as enumerated below.

1. **Awareness**: To help individuals and social groups acquire an awareness of and sensitivity to the total environment and its allied problems.

2. **Knowledge**: To help individuals and groups acquire basic understanding of the total environment, its associated problems and humanity’s critically responsible presence and role in it.

3. **Attitude**: To help individuals and social groups acquire social values, strong feelings of concern for the environment and the motivation for actively participating in its protection and improvement.

4. **Skill**: To help individuals and social groups acquire the skills for solving environmental problems.

5. **Evaluation ability**: To help individuals and social groups evaluate environmental measures and education programmes in terms of ecological, political, economic, social, aesthetic and educational factors.

6. **Participation**: To help individuals and social groups develop a sense of responsibility and urgency regarding environmental problems to ensure appropriate action to solve these problems.
1.4 Guiding Principles of Environmental Education

Tbilisi conference (UNESCO, 1977) again formulated a number of guiding principles of environmental education.

1. To consider the environment in its totality i.e., natural, built, technological, socio-economic, political, moral, cultural, historical and aesthetic aspect.

2. To consider a continuous life process, beginning at the preschool level and continuing through all formal and non-formal stages.

3. To be interdisciplinary in its approach.

4. To emphasize active participation in preventing and solving environmental problems.

5. To examine major environmental issues from local, national, regional and international point of view so that learners receives insights into environmental conditions for any geographical areas.

6. To focus on current and political environmental situations.

7. To explicitly consider environmental aspects in plans for growth and development.

8. To emphasize the complexity of environmental problems and thus need to develop critical thinking and problem solving ability.

9. To promote the value and necessity of local, national and international cooperation in the prevention and solution of environmental problems with due stress on
practical activities and first hand experiences.

10. To utilize diverse learning about environment and different approaches to teaching and learning about environment.

11. To help learners to discover the symptoms and the real causes of environmental problems.

12. To relate environmental sensitivity knowledge, problem solving and values clarification at every grade level but with special emphasis on environmental sensitivity to the learners own community in early years.

13. To enable learners to have a role in planning their learning experience and provide an opportunity for making decisions and accepting their consequences. (Sharma. P.D. 1999)

1.5 Curriculum of Environmental Education:

Kothari Commission (1966) recommended, “Environmental activities will lead to study of natural sciences, physical sciences, geography, history and civics; construction and creative skills will provide the basis for the practice of simple arts and crafts and practice of healthy living will serve as the foundation for environmental education.”

According to Secondary Education Commission, “Curriculum does not mean only the academic subjects traditionally taught in the school but it includes the totality of experiences that pupils receive through the manifold activities that go on in the school, in the classroom, library, laboratory, workshop, playgrounds and in the numerous informal
contacts between teachers and pupils. In this sense, the whole life of school becomes the curriculum, which can touch the evolution of a balanced personality”.

Keeping these in view, environmental education curricula and textbooks were developed. In fact, this was in response to the National policy on Education, 1986. The environmental educational dimensions were enforced at all levels. The NPE prescribed environmental protection as a core element to the national curricula. The concentric and spiral method of organization of curriculum was employed to explain various concepts to the students of various levels in the subjects like Science, Geography and Social Studies. However, the school curricula at the federal level underwent changes in 1988(MHRD), 1995(NCERT) and National Curriculum Framework 2005(CBSE). As such, it is interesting to study in-depth structure of the curriculum and changes that it underwent to address the issue of environment.

While the curriculum of Physical science, Biological Science and Geography involve knowledge and awareness of the environment, curriculum of Environmental Education includes means and ways for preventing the degradation. Environmental Education is not limited to the level of understanding; it has a functional role for betterment of mankind. This curriculum is comprehensive with inclusion of knowledge, awareness, skills, attitude, value, ability.

1.6 Concept of Environmental Awareness

Awareness is a condition of being sensitized on something. It implies having or exhibiting information and knowledge about an object or a concept. If a person accepts
an object or an idea, his/her interest or emotion arouses. This becomes stimulus in acquiring knowledge in related areas. Action is initiated in response to a specific stimulus. Thus, awareness may be explained as a response to an appropriate stimulus. Awareness is a conscious part of the mind which relates to realization and perception of knowledge (Good, 1973).

Environmental awareness implies a state of having factual knowledge related to environment, an understanding of environmental issues, the attitude for and responsibility towards a better environment. Environmental awareness involves environmental orientation or, information pertaining to environment, environmental attitude or the normal and neutral state of readiness to respond, organize through experience for exerting directive or dynamic influence on behavior (Allport, 1955) towards the environment, and responsibility for environmental issues and an inner urge for active participation in task pertaining to prevention of environmental degradation and improvement of environment.

Education aims at fostering a healthy awareness, an ability to analyze phenomenon, initiation of appropriate action and in turn necessary change. Proper awareness only can help in right analysis of an event and promoting necessary action and change. Thus awareness has significant role in the process of education. Effectiveness of a curriculum can be accessed through the level of awareness pertaining to various concepts developed in pupils. Environmental Education is an effective tool in developing environmental awareness, initiating actions for prevention of environmental pollution and improvement of the mother earth.
1.7 Concept of Attitude

An attitude is a “Mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual’s response to all objects with which it is related” (Allport, 1935). It is “the degree of positive or negative affect associated with some psychological object.” (Thurstone, 1946). “An attitude is a particular feeling about something. It therefore involves a tendency to behave in a certain way in situations which involve something, whether person, idea, object. It is particularly rational and particularly emotional and is acquired, not inherent in an individual” (Sorenson, 1977). An attitude has been defined as a tendency to react favourably or unfavorably toward a designated class of stimuli, such as a national or racial group, a custom or an institution (Anastasi, 1976). It is a positive or negative evaluation of people, objects, event, activities, ideas, or just about anything in environment (Zimbardo et al. 1999).

Thus, it can be said, attitude develops as a result of person’s experience. Attitudes imply certain mental condition or an individual’s opinion over any object or idea. Attitude determines a person’s behavior and performance. It is acquired, dynamic and may vary strongly positive to strongly negative. Attitude motivates and stimulates learner’s performance, duration of learning, retention and utilization of learned material. Again education aims at formation of desirable behavior and attitude in pupils. Attitude, as indicated, is a learned trait and success of a pupil depends on the extent to which the intended attitude has developed.

Thus pupil’s attitude has a significant role for effectiveness of a curriculum.
Moreover effectiveness of a life-centered curriculum is assessed in term of success of pupils in vocational field. As varied occupations are consistent with varied attitudes, attitude has a significant role in selection of an appropriate occupation as well as success in that specific field.

1.8 Concept of Achievement

Encyclopedia of Psychology (Volume 1, 1972) explains achievement as follow,

a. General term for the successful attainment of some goal requiring certain effort.

b. The degree of success attained in a task, e.g. solving a test

c. The result of a certain intellectual or physical activity defined according to individual and or objective (organizational) pre-requisites, i.e. proficiency.

‘Achievement’ implies relative accomplishment in a specified area or work (Michaels and Karnes, 1950).

Academic achievement stands for the level of proficiency or performance in the school made tests on provided subjects. It also refers to the acquired knowledge, skills developed through school curriculum. It involves to be recognized in accomplishing something of great significance, to do a difficult task successfully, to solve critical puzzles and problems, to be able to perform better than others and to write a poem, story, novel, play or an essay.

1.9 Statement of the Problem

The term environment in recent times is at the centre stage since everybody is
getting affected by its rapid deterioration on account of excessive and undesirable human activities. There are a lot of environmental problems to be addressed. Solution of these problems is possible only through development of awareness. Awareness is developed through knowledge. School curriculum provides this knowledge to our young citizens. So there is a need of environmental dimensions in curriculum framework. Moreover, sometimes the national level curriculum framework fails to meet the need of the regions. Existing structure of environmental studies curriculum is to be viewed in the light of national level recommendations. Effectiveness of environmental studies curriculum is to be assessed at regional level in terms of developing awareness and attitudes of students towards environment.

The researcher tries to meet these ends in her study entitled. ‘Secondary School Curriculum for Environmental Studies in Barak Valley: A Critical Study.’

1.10 Study Objectives:

1. To study the existing structure of Environmental Studies Curriculum under the Board of Secondary Education, Assam (SEBA)

2. To assess the influence of socioeconomic status on the environmental awareness level among Barak Valley students from the schools under SEBA

3. To assess the influence of achievement in the subject of EVS on the environmental awareness level among Barak Valley students from the schools under SEBA.

4. To assess the influence of settlement on the environmental awareness level
among Barak Valley students from the schools under SEBA

5. To measure the influence of socioeconomic status on the attitude towards 
   environment of students belonging to Barak Valley schools under SEBA.

6. To measure the influence of achievement in the subject of EVS on the attitude 
   towards environment of students belonging to Barak Valley schools under 
   SEBA.

7. To measure the influence of settlement on the attitude towards environment of 
   students belonging to Barak Valley

8. To study the influence of gender on the environmental awareness level among 
   Barak Valley students from the schools under SEBA

9. To study influence of gender on the attitude towards environment of students 
   belonging to Barak Valley schools under SEBA.

10. To suggest the improvements and modifications if necessary in the existing 
    Environmental Studies curriculum framed by SEBA based on the present 
    study.

11. To find out the achievement levels of students from Barak Valley schools under 
    SEBA in the subject of Environmental Studies.

1.11 Hypothesis of the Study:

1. Studying the existing Environmental Studies Curriculum framed by SEBA will 
   help for curriculum revision.
2. The environmental awareness level of Barak Valley students under SEBA is independent of their socio economic status

3. The environmental awareness level of Barak Valley students under SEBA is independent of their achievement in the subject of Environmental Studies

4. The environmental awareness level of Barak Valley students under SEBA is independent of their settlement

5. The attitude of Barak Valley students under SEBA towards environment is independent of socio-economic status

6. The attitude of Barak Valley students under SEBA towards environment is independent of their achievement in the subject of Environmental Studies.

7. The attitude of Barak Valley students under SEBA towards environment is independent of settlement

8. The environmental awareness level of Barak Valley students under SEBA is independent of gender

9. The attitude towards environment of students belonging to Barak Valley schools under SEBA is independent of gender.

1.12 Significance of the study

The simple life style of early inhabitants of earth had minimum interference with environment. With the arrival of modernization on the wheels of industrial revolution human interventions increased. Exponential growth of human population leads to a flow
in developmental process. Urbanization, industrialization, changes in agricultural practices, destruction of habitation, deforestation, use of chemical fertilizer and pesticides, over consumption of energy sources and unplanned exploitation of natural resources have resulted in environmental degradation. This ultimately jeopardized the very survival of humankind on earth. The conferences and earth summit have highlighted on environmental protection and initiated related measures. Any government alone cannot be able to meet the conditions for sustainable development. The goal of sustainable development can be achieved if each and every citizen participates. The mass participation is not possible without a mass awareness. The conscious involvement of the masses at grass root level can make the effort for creating awareness much easier. Awareness and understanding can be best developed through knowledge. School curriculum happens to be the prime source of this knowledge as it deals with impressionable minds. So there is a need for environmental dimension to be within the framework of school curriculum. Our country has already emphasized the issue of creating environmental awareness through formal education system. Environmental concepts have infused at every level with the former curricular framework. Sometimes the national level curriculum fails to cater the need of the regions. Here lies the signification of the present study. The present study tries to analyze the structure of an existing state level curriculum for environmental studies. Again the effectiveness of state level curriculum has been explored in terms of its ability to create awareness and develop attitude among students of a particular region i.e. Barak Valley. The present study is an attempt to reflect on the structure of state level curriculum in the light of national level recommendations as well as to meet the regional level situation in terms of developing
awareness and attitude among students. More over this study attempts to suggest some improvements of existing curriculum which should be able to develop proper environmental awareness and attitude of students ultimate resulting in protection of environment. A critical investigation shows that no such work has been conducted with reference to curriculum aspect of environmental education in the context of Barak Valley and it happens to be a pioneering work.

1.13 Delimitation of the study

1. The study is limited to the students in selected secondary schools of Barak Valley in the state of Assam.

2. The study is limited to the environmental studies curriculum developed by the Board of Secondary Education, Assam (SEBA).

3. The sample size of the study is limited to 624 students only.

4. The study is limited to the academic achievements of secondary school students in environmental studies.

5. Its limitation stems from the fact that it is limited to the attitude of secondary school students on environmental issues.

6. The study is limited to the awareness of secondary school students of environmental issues.
1.14: Operational Definitions of Terms-

1. Secondary School Students

It refers to the students who study in classes VIII, IX and X.

2. Environmental Studies Curriculum

a. The textbooks prescribed and used in classes from VIII standard to X standard in secondary schools under the Board of Secondary Education, Assam.

b. The activities and projects carried out by the students for the subject of environmental studies.

3. Awareness:

It is defined as the knowledge of the secondary school students in the areas of environment related issues, environmental problems and its consequences. It is represented by the scores obtained by the sample students in environmental awareness tests.

4. Attitude: It is defined as the tendency of secondary school students to react favourably or unfavorably towards environmental issues. It is represented by the scores obtained by the sample students on the attitude scale devised for environmental concerns.

5. Cognitive variable

Cognitive variable here refers to academic achievement for the purpose of the study. Achievement: It is defined as the scores of tests obtained in the subject of Environmental
Studies in half-yearly examinations.

6. **Non-cognitive variables**

These are the variables which are not related to mental faculties.

a. Socio-economic status: It refers to the social and economic factors which are educationally and psychologically important to the students. It is represented by the scores obtained on the socio-economic status scale developed by Kuppuswamy and modified by the researcher.

b. Settlement: It refers to both the urban and rural areas from where the secondary school students come.

c. Gender: It refers to the male and female students of secondary schools.

1.15 **Locale of the Study:**

The study was set in Barak Valley, a land locked valley in South Assam. The valley has been known to be a peaceful one in terms of law and order in the entire northeast and known for its cultural and literary heritage. The valley is rich in its tradition of political consciousness and has been a hotspot of political strife and language movements since independence. Essentially a second home for immigrants from Bangladesh and erstwhile Pakistan after partition and independence, as it had to face the brunt of partition most severely in the Northeast. The annexation of Sylhet district of Bangladesh from India forced the religious minorities in the erstwhile Pakistan to adopt Barak valley as their post-partition shelter. The displaced immigrants were forced to convert agricultural and forest lands into inhabitable locations. This put a huge pressure
on the ecological treasures of Barak Valley, a part of Indo- Burma Biodiversity Hot Spots. The flora and fauna of the valley is now not even a shadow of its past and the constant influx of the migrants from across the border is further deteriorating the fragile situation. While the situation on ecological front has become a little topsy-turvy, the educational and cultural tradition of the valley can still resuscitate the ecological condition if proper awareness in terms of environmental degradation is created.

**Topography** - The River Barak, the main river of the valley flowing in East-West direction through the place has lent its name to the valley. The river Barak is the mainstay and lifeblood of Barak valley traversing through nearly the middle of the valley. The river flowing at about 20 meters above mean sea level is surrounded by small sized hills on three sides. Hills in the valley and surrounding the river are having around 1500 meters of height and full of rich forest cover especially with bamboos.

The tributaries of Barak like Jiri, the Sonai, the Katakhal, and the Dhalewshari on the south and the Jiri, the Chiri, the Madhura and the Jatinaga on the north side of flow in a south-north and north-south direction respectively. “The Barak splits into two branches, namely Surma and Kushiara that enter Bangladesh and rejoins to form mighty Meghna. These two branches also receive some important tributaries within the Indian territory such as Rivers Harang (of Surma), Longai and Singla (of Kushiara) besides several flowing from Tripura and Meghalaya to join either Kushiara or Surma in Bangladesh. Thus the Barak Valley is a part of the Meghna Basin, the latter narrowing down in its northeastern extremity where it is hemmed in by the mountains of the Jaintia Hills and the Borail Range to the north, the Bhuban Range bordering Manipur to the
East, Mizoram to the south, and that of Tripura to the south west. Lying approximately between 24°8'-25°8' N latitude and 92°15'-93°15' E longitude, the Barak valley covers a geographical area of c 6922 km² of which some 3839 km² (55.46%) comprises forests that are mostly confined in wetlands that occupy a total area of 13737.5 ha" (Gupta, A, 2009).

According to geologists, the hill ranges are mainly composed of older rock formatting while the valley is composed of younger and softer formation. Rocks in the valley are mainly of younger alluvium and in addition to that the other rocks present are (a) Jaintia and Dishang series (b) Dithing and Dupitila series and (c) Barail series. “The river and streams of the valley are having an anastomotic pattern and overall drainage pattern of the scene is dendritic pattern” (Ghosh, Lamar & Roel))

**Ecological Scenario**- Known to have come under British rule in 1832 after Burmese accession of Cachar kingdom, the valley became famous for its tea and timber. In the initial years of British rule, the forests of Barak Valley was open to the encroachers and businessman operating in forests products. There was no restriction in terms of felling of trees for supplying to Kolkata for wooden products. The frontier attitude’ of development which considers earth as full of inexhaustible resources had its field day in the forests of the valley and most unfortunate aspect of the whole issue is that the Valley rarely had a deep forest. Gupta (2009) mentions “Although the total forest area in Cachar and Hailakandi are around 58% and that in Karimganj is around 46% of the total geographical area, the proportion of very dense forest is extremely low, ranging from 0.24% in Karimganj to 3.6% in Cachar. The moderate dense forests are around 40%
while the remaining 54-60% is open, degraded forest. The forest department’s resource oriented assessments of Cachar forests also portrays a dismal picture. While the open—forests offer very poor prospects for forest product extraction, any further exploitation of the moderately dense forests would strike the proverbial last nail in the coffin of the remaining wild habitats and seriously hamper the ecosystem services with disastrous ecological consequences. Nevertheless, even from these degraded forests, some 60 Non timber forest products (NTFP) are still being harvested to provide livelihood to a large number of forest dwellers and traders. About 20 such items find their markets outside the state as well. However the availability is fast declining and trying to build any development blueprint based on the forest sector without first achieving a robust regeneration of these ecosystems would comprise a foolhardy and futile exercise.” (ibid).

While Barak Valley is becoming poorer and poorer in terms of its once rich forest treasure, the valley had initially impressed the British with its rich biological capital which included its flood plain soil and rich productivity of agricultural crops, river, and fishery. But over the years, the excavation of all natural resources without an effort to sustain it for future generations has made the rich biological resources a thing of the past.

In a ‘geographical-ecological perspective’ as Gupta (2009) mentions, “the topography of the Barak Valley terrain is of highly undulating nature with the central alluvial flats frequently broken by isolated hillocks or tillah’s and small hilly tracts- mostly running in a north-south orientation that merge with the outlying hill ranges. In such an intricate hill-valley complex, it is essential to protect the ecological integrity of the hills in
order to maintain the productivity of the valley areas. Rampant deforestation in the mountain in the peripheries of Barak valley including those of Meghalaya, Manipur, Mizoram, Tripura and North Cachar hills resulted in soil erosion and consequent silt deposition in the rivers and wetlands, reducing their carrying capacity and productivity (ibid).

Over the years, the valley has traversed along a declining road in terms of biological resources. The agrarian fields of Syllhet and Cachar were once known as the granaries of undivided Bengal and now the valley including Cachar, Karimganj and Hailakandi, its three districts together does not produce enough food for internal consumption. The rivers once rich with organic matter, rich topsoil is now full of coarse nutrient poor sand as the silt load instead of being deposited in flood plains now is deposited in the river bed due to heavy soil erosion. Reckless deforestation and felling of trees have virtually made the rivers incapable of carrying water, nurturing fishes and have virtually turned into sources of pain in monsoon season. Cachar and Karimganj were once known for biggest flood plains and huge production of fishes, the recent situation has made not only the floodplains useless, the valley once known for its fish production has to depend now on fish from outside.

**Wildlife**- Barak Valley once rich in wildlife has now gone down the way of decadence like its other biological capital. The forests which used to be swamped with two species of Javan and Sumatran rhinoceros, hoolock gibbon, the only Indian ape, spectacled or Phayre’s leaf monkey, the mountain goat ‘serow’, elephants or tigers are now be found only in forest chronicles. Barak valley is located within Indo-Burma Biodiversity Hotspot
which is among the 25 most important Biodiversity Hotspots in the whole world is now also happens to be the poorest in terms of its rich flora and fauna. At one point of time, there was no restriction on extracting ivory and this has led elephants to become an extinct species virtually not only in the forests of Barak valley but also in the forests of neighbouring states. Even in 1960’s, Borail range of forests had 200-300 pachyderms and now they are not to be found anywhere near the valley. The loss of habitat due to migration of homeless people from neighbouring country because of a language and topographical affinity and increasing deforestation owing to furtherance of commercial interests have led tigers and elephants, swamp deer and hornbills, hillock gibbon and rhinoceros walking down the primrose path to dusty death and extinction. Gupta (2005) mentions ‘the ghorial has vanished from river Barak, although a few dolphins are still sighted, four species of soft shell turtles survive in R. Barak and its tributaries as well as in some wetlands, although regular selling of turtle in the markets spell impending doom..............” (ibid).

**Language**- The official language of Barak valley is Bengali and the language acquired official status after many movements and political strife. In addition to Bengali, Manipuri, Naga and Dimasa languages are also used by the inhabitants of the valley but since most of inhabitants are immigrants from Sylhet district of Bangladesh, the Bengali spoken here has a district overtone of Sylheti dialect.

**Demographic pattern** - Religious demography of the valley is a multi-coloured umbrella. Muslims dominate Karimganj and Hailakandi districts and in terms of the entire valley, they constitute more them half of the population. Hindus are above 40%
while the Christians constitute nearly 5% of the total population as Hmar and certain sections of Dimasa people have converted to Christianity.

The valley is rich in terms of its ethnic diversity. In addition to its original inhabitants like Cacharis and Dimasas, the three districts of the valley are also home to Bengalis, Manipuris (both Bishnupriya and Meitai), Rongmei and Jeliarong Nagas, tea tribes, (mostly immigrants from Santhal Parganas of Chotanagpur Plateau) and Hmar people. The valley has never been known for any ethnic strife even once.

The research locale has been selected with a view to understand how Environmental Education can help building a consciousness in the mind of students and upcoming responsible citizens about the dangers posed on sustainable livelihood by constant exploitation of natural resources. The Valley named after River Barak and located in the southern part of Assam can answer a few questions regarding the effectiveness of the curriculum of Environmental Education in the sense that it can throw a light on how far students are capable of correlating their life-experiences with whatever they imbibe from their texts in the schools. The necessity of Environmental Education is becoming increasingly sharper especially in a place like this which despite being a part of World’s most important 25 Biodiversity Hot Spots has now no biodiversity virtually to speak of. The selection of research setting is justified on the ground that the environmental awareness of the future citizens of a place dangerously in the throes of ecological destruction needs to be measured and it requires to be done at the earliest.
# ASSAM

## Economic and Human Development Indicators

<table>
<thead>
<tr>
<th>Demographic Indicators</th>
<th>Assem</th>
<th>India</th>
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<tbody>
<tr>
<td>1 Total Population (In Millions)</td>
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<tr>
<td>2 % contribution to national population</td>
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<tr>
<td>3 Sex Ratio (females per 1000 males)</td>
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<td>940</td>
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<td>4 Under 6 sex ratio (females per 1000 males)</td>
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<td>Gross Domestic Product (at factor cost) (Rs crores) (For India)</td>
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<td>6 Contribution of Agriculture to NSDP/GDP (%)</td>
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<tr>
<td>7 Contribution of Industry to NSDP/GDP (%)</td>
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<tr>
<td>8 Contribution of Services to NSDP/GDP (%)</td>
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<tr>
<td>9 Per Capita Net State Domestic Product (factor cost) (Rs) (for State)</td>
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<td>Per Capita Net National Product (factor cost) (Rs) (for India)</td>
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<td>10 NDP Growth rate (%) (for State)</td>
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<td>GDP Growth Rate (%) (for India)</td>
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<td>13 Gender Related Development Index (GDI)</td>
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<td>14 GDI Rank (out of 35)</td>
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<td>15 Gender Empowerment Measure (GEM)</td>
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### Human Development Indicators

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<td>17 Inequality Adjusted Human Development Index Value (IHDI)</td>
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<td>18 Inequality Adjusted Human Development Index Rank (out of 19)</td>
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<td>19 Loss in HDI due to inequalities (%)</td>
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<tr>
<td>20 Literacy Rate (%)</td>
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<td>21 Male Literacy Rate (%)</td>
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<td>22 Female Literacy Rate (%)</td>
<td>67.27</td>
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* Value differ from India IHDI in Global HDR 2011 due to different data sources.

### Poverty and Hunger Indicators

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<td>24 Total number of poor (in millions)</td>
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<td>25 Multidimensional Poverty Index (MPI)</td>
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<td>26 Multidimensional Poverty Headcount (%)</td>
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<td>27 Number of Multidimensional Poor (in millions)</td>
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<td>28 Global Hunger Index (GI II)</td>
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<td>29 GI II Rank (out of 17)</td>
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<td>30 Prevalence of calorie undernourishment (%)</td>
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<tr>
<td>31 Prevalence of Underweight Children under 5 years of age (%)</td>
<td>36.4</td>
<td>42.5</td>
</tr>
</tbody>
</table>

### Indicators and Source


11-12 India Human Development Report 2011, IAMR and Planning Commission


17-19 Inequality Adjusted Human Development Index for India's States 2011, UNDP, www.undp.org.in/sites/default/files/reports_publication/IHDI_India.pdf

