EXPLORING THE EMERGING THEORY FOR THE DEVELOPMENT OF RESPONSIBLE ENVIRONMENTAL BEHAVIOR

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DEDICATION

To our own Mother Earth

ABSTRACT

"How responsible environmental behavior can be developed among our students?" was the question I explored through grounded theory research approach under qualitative research design. The purpose of my study was to explore the emerging theories related to the development of responsible environmental behavior and its implication in education. The study group was selected by theoretical sampling technique which included ten secondary level students, four female and six male, studying in various public and private schools.

The current study uncovered various theories from the ground that essentially recognized students' conscientious actions upon the environment that are attributable to increased level of cognitive capability which serve as a contributing factor to the wider transfer of acquired knowledge and skills in the society and to induce a shift from the existing reality to a new reality where a new 'habitus' is created with an emphasis in transferring their environmental concern in their daily lives. Students produce and reproduce society in its cultural, social, and economic dimensions through a cyclical process of learning where emphasis is placed on gaining positive reflection through the experience along with expectation from the significant person, need of reinforcement and need of cultivating habit. Environment is a prime concern of the society-society needs to be widely and largely benefited from the learning of the students. We have many rich cultures within our surroundings, if the understanding of teaching and learning can reflect upon the understanding with one another, we can open new doors for understanding and inquiry for our students. Thus these theories captured by the research findings can be an important aspect to be

adopted in the Nepalese education system in pedagogical aspect of responsible environmental behavior, an ultimate goal of environmental education.

Key Words: Environmental Education, Emerging Theories, and Responsible Environmental Behavior.

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Anjana Shakya

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ABBREVIATIONS

CENEED	Centre for Nepal Environmental and Educational Development
EE	Environmental Education
FOE	Faculty of Education
GT	Grounded Theory
IUCN	International Union of World Conservation
JSEE	Japanese Society of Environmental Education
NCS	National Conservation Strategy
NG	Nepal Government
REB	Responsible Environmental Behavior
SAARC	South Asian Regional Cooperation
SDMC	SAARC Disaster Management Centre
UN	United Nation
UNCED	United Nations Conference on Environmental and Development
UNEP	United Nations Environment Program
UNESCO	United Nations Educational Scientific and Cultural Organizations

CHAPTER I

INTRODUCTION

Chapter one deals with background of the study, purpose of the study, problem statement, research questions, rationale of the study and delimitations.

Background of the Study

"Nature provides everything for a man's needs but not for the greed's"- Mahatma Gandhi

Highlighting the importance of environmental protection, Pwani Yetu (2002) says:

> We have witnessed our earth being tormented by heartbreaking disasters. We have witnessed and we are continuing to painfully see people dying because of hunger. We have witnessed people's property being destroyed by storms and floods. Every other day we hear of deaths caused by diarrhea, cholera, malaria and other diseases caused by unhealthy environment. We shouldn't allow this to continue. We should strive to change the situation - let's change behavior by protecting the environment so that it also protects our livelihoods (para. 3).

The question of environment protection is assuming basic proportions and imposes on the very survival of human kind. There is a serious dichotomy between human's various approaches to nature and nature's resources reasonably available to them. Nature is now critically damaged and there are efforts required towards the conservation. In fact, there are infinite ways damaging natural ecosystems, while there are few finite means to protect them.

It is important to understand that the environment and human being are two inseparable entities. In ancient time, the needs of human beings were limited

compared to the resources available. The demands of human beings were easily met, as there were enough natural resources. As a result, the functions of nature were undisturbed and whatever damage done to the environment was repaired through natural processes. At that time, fire, hunting and poaching, were humans' most damaging practices on the environment. Gradually, human beings began to settle down instead of wandering in search of food. They began to cultivate land for producing food. They felt the need of comfort and luxury for which natural resources were extracted. The development of science and technology, and the way they were used by humans caused misuse of the environment and a reckless exploitation of nature. Every year, the number of people in the world grows and thus the pressure on the natural environment.

Human beings have inflicted certain damage, which is irreparable and permanent. Present world is suffering from different kinds of environmental problems such as climate change, global warming, and green house effect, destruction of biodiversity, ozone layer depletion, acid rain and pollution which have had devastating effects on humanity. All those have threatened the very survival of human beings.

The fast pace of industrial development has brought with it a host of problems. Over-development without proper planning results in serious environmental imbalances. There are also some areas of under-development that can be traced to a shortage of resources. Both over-development and under-development cause environmental deterioration.

From many years several floods and other natural calamities have struck different parts of South Asia. The increasing magnitude and frequency of flood over the past decades in South Asia is an alarming call for all of the South Asian Regional

Cooperation countries (SDMC, 2008). Nevertheless, flood and other natural calamities are not caused by nature's cruelty alone but also by human activities that are against the nature. Rising number of embankments, change in land cover, growing population, human encroachments over river bank and climate change exacerbate the situation as well. After any disasters, malnutrition, diseases, debt crisis and migration provoked the situation.

Among the SAARC countries, Nepal is quite rich in natural resources, water, forest and cultural heritage. However, its beauty and richness is adversely affected due to environmental problems. A number of issues provide grounds for serious concern. The most pressing of these issues are soil erosion, land degradation, deforestation, and loss of biodiversity, landslides, flood, and different types of environmental problems such as air, water, sound and other environmental pollution generally in the urban areas and the continued destruction of habitats across Nepal. In addition, river systems and groundwater supplies continue to be depleted at unsustainable rates in many parts of Nepal, with major environmental consequences like water borne diseases. On one hand, Nepal is suffering from global environmental problems, and on the other hand, it is facing different kinds of national environmental problems. Here question arises in our mind to the extent that having understood so much about nature or environment why human beings create hindrances for it? In some respect nature dominates the life of human beings and in some cases the modern and civilized human beings mechanically regulate the nature and prove themselves as master, or a slave to nature. In materialistic age human satisfies their ego by utilizing the environmental resources to meet their ever increasing wants for a better living. Thus it is necessary for all to realize the need of environmental protection and preservation. We must realize that the environment couldn’t be exploited beyond

certain limits. Environment is common to all of us. Any adverse impact affects us all. It is our common duty to conserve the environment.

The most serious long-term threat facing the world is the danger that human actions are producing irreversible harmful changes to the environmental conditions that support life on Earth. If this problem is not overcome, there may be no viable world for our descendants to inhabit. For the foreseeable future, sustainable management of the environment will be one of the greatest challenges confronting the world.

It has long been recognized that the root of environmental problems is human behavior. Thus only a change in human behavior can reduce these environmental problems (Gresele, Martens, & Rost, 1998; New house, 1990). Many other sources have written about these threats to the Earth and about the behavioral changes that will be necessary to overcome them. All of them have a common conception that enormous changes to human lifestyles and cultural practices may be required to reach the goal of a sustainable level of impact on the environment-i.e. one that can be maintained indefinitely (Gresele et al., 1998 & Stepath, 2000). Human efforts are necessary to disseminate knowledge and skills concerning environmental protection.

Most of the well known approaches to environmental management, both structural and non-structural, are tried in some part of the country or the other in SAARC region, but with limited success (SDMC, 2008). No doubt, Government intervention is unavoidable in some cases and at some times, but it has its own limitations because of the usual inaccessibility, delay in response etc. Moreover, Government may not have an adequate and extensive machinery to reach every affected household during disaster, especially in the interior villages. Hence, a need to introduce public involvement in environmental management is felt all over the world.

All over the world, conservation strategies recognize the global threat to the earth's survival and the needs of future generations. These concerns that education is a common denominator in an attempt to find solutions need focus. The perception about education has a glaring example in the Chinese proverb as quoted by De (2004) 'If you plan for one year, plant rice; If you plan for ten years, plant trees; But if you plan for 100 years, educate the people.' It is the people's education which holds the key to environmental management and good quality of life.

Today, there is a growing concern regarding the changes taking place in the natural environment. There are some of the questions, which highlight the importance of environmental protection activities in schools as well as in the communities. Hence, it is very necessary to make people aware of these issues and of the means of the protection of the environment as given in International Union of World Conservation (IUCN, 2002).

Apparently, the 'Environment' as a topic, seems to be part of everybody's life. Nevertheless, we find that many people's behavior still cause damage to animals and nature. We think then that the expression 'respect the environment' is only part of a 'fashion' and that people are looking at it from an aesthetic point of view. It is not penetrating people's mind. The answers to the serious environmental problems we are experiencing are not a part of the social and political debate. Only small action groups try to provide solutions but they don't have the possibility of being heard by public administrations and social organizations. We think that only through the education of children we will be able to transmit our worries about the environment in such a way that respect and care for nature will be introduced in their lifestyle and relationship with the environment so as to create the solid basis for the future. With this

‘awareness’ we hope to put life into literary and artistic creation for children to respect the environment. As quoted by Buffet (1990), he said:

> Our children may save us if they are taught to care properly for the planet; but if not, it may be back to the Ice Age or the caves from where we first emerged. Then we'll have to view the universe above from a cold, dark place. No more jet skis, nuclear weapons, plastic crap, broken pay phones, drugs, cars, waffle irons, or television. Come to think of it, that might not be a bad idea.

The above quote enabled one to ask question like can we develop a common understanding of what is meant by the final goal of Environmental Education (EE). By this I mean that innovations made to introduce high quality EE practice into the school system that results in Responsible Environmental Behavior (REB) among our students.

Active participation in its conservation can only be expected from individuals who have the knowledge, the right attitude and appropriate conservation skills. By definition, EE, therefore, has to be a part and parcel of each individual. The EE aims at developing ethical values which guides the activities of a person. According to declaration of the Tbilisi conference (1978), EE should constitute a comprehensive lifelong education, one responsive to changes in a rapidly changing world. It should prepare the individual for life through an understanding of the major problems of the contemporary world, and the provision of skills and attributes needed to play a productive role towards improving life and protecting the environment. EE should be provided for all ages, at all levels and in both formal and non-formal education. The learners should be provided in their course with the necessary knowledge and skills and be given a full sense of responsibilities in this respect.

A large portion of our country's human resources learning EE in their respective educational institutions can make an important contribution to conserve the environment. Although ‘attainment of knowledge’ may meet the strictest definition of EE, the real goal is to develop REB and improved environmental quality as given by United Nations Educational Scientific and Cultural Organizations (UNESCO, 1977). EE is distinguished by its emphasis on REB and informed citizen action, in addition to the acquisition of knowledge about the environment.

The pursuit of deeper theories and broader practices of EE are among the most important tasks facing us as we aim to solve global environmental problems and build a sustainable society in the 21st century (JSEE, 2008). Educators accentuate that if understanding of environmental issues is developed at the school level, it can go a long way to limit and stop the slow destruction of earth’s natural resources. Given the state of the earth, it is apparent that everybody could do with more skills and a better understanding in using the environment wisely. The targets for EE can be categorized as professionals, technicians, teachers, trainers, and extension workers, children of school age, agricultural communities, urban dwellers and industries. Each of these target groups requires an approach to EE tailored to meet their specific needs, but the basic aim remains the same. Through EE, people can acquire appropriate knowledge and skills to help them adopt socially and environmentally responsible lifestyles (Carew, 1991).

EE is necessary to prepare environmentally conscious citizens. It has been realized that EE can play a critical role in solving environmental crises. It has both short term and long-term significance for preparing individuals who can contribute to keep the environment healthy and safe. EE enables the citizens to design, devise and plan their actions in harmony with the environment. EE thus aims to enlarge the

understanding of the interdependence of human beings and their biophysical surroundings.

The term EE as a distinct entity, is not of recent origin, the environment had been associated and had been a source of education from the very early days of human civilisation. If we look back our own religious practices, there are several principles of importance to the human future that can be distilled from the teachings of Hinduism, Buddhism, Islamic - principles relating to the inevitability of the consequences of one's actions, the interconnectedness of all things, the linkage between past, present and future, the integrity of the human family, the harmony that is necessary between humanity and the natural order and many others. It is clear that the most ancient texts on Hinduism demonstrate through the praise of the deities an ecological awareness and great respect for the natural world. There are many specific teachings on environmental matters contained in all these writings and ecological activists have drawn much inspiration from the text. The ancient philosophers believed that the entire universe including earth, plants, animals and human beings is made of five essential elements viz. kshiti (earth), op (water), teja (fire or energy), marut (air) and byom (open space). In the formal education system, before seventies, the roots of EE can be traced back to the school system of different countries under various names such as ‘Nature study’, ‘Local study, ‘Field study’, ‘Rural study, ‘Outdoor education’, ‘Conservation education’ etc. (Mohapatra, 2002). Gradually people’s intervention in the environment increased and caused concern among the thinkers who realised the changes there in. From among those thinkers we can recollect the thinking of Jean Jacques Rousseau of 18th century who stood as a great landmark in annals of history for his revolution against the degradation of physical and social environment. The idea of EE was evolved long before. However, the understanding and practice began to

change in the seventies. One of the landmarks in the history of EE was the 1972 Stockholm conference on human environment organised by UNESCO. This was followed by International EE Workshop held Belgrade in October 1975. Then the Belgrade workshop was followed by regional workshops. Tbilisi conference held in October 1977 was the first inter government conference on EE. The conference recommended for the application of EE in formal and non-formal education. Thus, it shows that situation began to change in the seventies. In response to the ecological consideration highlighted primarily by conservationists school curricula became more and more concerned with environmental problems. Different agencies and organizations were established for the sake of promoting EE. They were IUCN, UNESCO and other organizations that plays meaningful role for the promotion of EE. The developmental history of EE indicated that, it was modified according to the needs of the pupils that are necessary to adjust with their environment. Different literature recommended that classroom practices of EE must be designed to enhance the action competence of the pupils that enable them to address the issues.

One of Nepal's national goals of education is to teach thoughtful protection and wise use of the natural environment and national heritage. Education should bring forth magnanimity in students, in harmony with democratic norms, after having acquired the capability to exploit human resources, so as to develop skillful, well-disciplined and responsible citizens capable enough to withstand competitive life-style for this purpose. Health, population and environment education has been prescribed as a compulsory subject to enable the students of secondary level acquire knowledge, skills and concepts related to the subjects.

Nepal's ability to meet environmental threats at home and abroad is inextricably linked with the priority it places on effective EE. The status of EE in

Nepal can be described in terms of formal education and non-formal education. EE as a subject is vital to school education in Nepal. Topics on EE are included in the national curriculum of grade 1-12. The development of EE in Nepal developed formally from the New Education System Plan of 1971 followed by the National Conservation Strategy (NCS) for Nepal in 1987, a National Conference on EE was held in 1991 followed by the National Commission for Education (1992), establishment of the Ministry of Environment and Population in 1995. Primary Level EE for Primary Schools Program under the NCS Implementation Project was initiated in 1990 and completed in 1992, for lower Secondary level the curriculum on population and EE was implemented in 1994/95 for class 6, in 1995/96 for class 7, and in 1996/97 for class 8. At secondary Level, the High Level Educational Commission, 2055 of 1998 recommended an integrated course, Health, Population and EE as a compulsory subject and Environmental Science as elective subjects. The curriculum for higher secondary education includes EE at grade 12 as an elective subject and from this year it will be included in grade 11 too. In collaboration with IUCN Nepal, the Faculty of Education at Tribuvan University has developed a curriculum for a three year Bachelor's degree program which includes two elective courses on environment education. In Kathmandu University, Post Graduate Diploma program started in 2007 with support from Norwegian university and presently running Master in EE and Sustainable development.

EE has obtained growing momentum, but has been unable to make a quantum leap towards preventing, stopping and reversing environmental degradation. Though there are sound national policies, EE activities have been unsuccessful in many countries of the region due to inadequacies such as a lack of manpower, physical facilities, data, conceptual clarity, curricular development and pedagogy. These

problems are prevalent in many countries, but their extent varies from country to country (Abe & Bhandari, 2001).

Despite the fact that EE was declared a global assignment, its realization, still shows many gaps and inconsistencies. In many developing countries the availability of EE exits only on paper. Although many policies on paper exist for EE, formal application is still often ad-hoc and inconsistently applied according to the individual teacher's preferences and availability of resources. An important reason for the negligible implementation of EE is, of course, the extremely difficult situation in many Third World Countries. High national debt and a lack of capital in many countries have had such a devastating effect on the whole of the educational sector that EE is a very low priority compared to primary needs. What does exist is often very elementary (Apel & Camozzi, 1996).

It follows that disseminating EE is the only way which enables one to understand that all these complex problems have roots in our daily activities and that, modification in our attitude and actions have a positive impact on the conservation of local as well as global environment. Conventional thinking in the field of EE suggests a linear model for changing behavior – as individuals become more knowledgeable, they become more aware of environmental problems and, thus, become more motivated to act towards the environment in more responsible ways. However, research findings do not support this linearity. This indicates that national environmental plans and programs need to address this fact and implement in the curriculum accordingly. It also asserts that policy makers need to know magnitudes of such roles and relationship to design an effective curriculum. Today more than ever, society needs high-quality EE programs that succeed in moving values and changing behaviors in the direction of sustainability and environmental conservation. Effective,

relevant research offers a very powerful way to improve these education programs and enables them to succeed in accomplishing more of their objectives and goals. The most promising question is how to address all these issues and embark upon the situation in other to get more prominent solution. Within the field of EE, the traditional emphasis of research has been on the presentation of knowledge; what to teach and how to teach (Ballantyne, 1996). More recently researchers have begun to explore how the students can take the EE in their real life situation which is merely related with the process of generation of REB. While there were some progressive studies of this kind and developed several theories related to REB generation, paucity was in our Nepalese context. Thus this research aims to develop theories related to development of REB through school environment education in our own Nepalese context so as to bridge this knowledge gap and contribute to informed decision making.

Purpose of the Study

1. To explore the emerging theories generated for the development of REB.
2. To explore the implication of emerging theories in education.

Problem Statement

Environment-related concepts have already formed a part of study programs in school education in Nepal. In Nepal noteworthy amount of efforts have been, and continue to be, spent on EE programs by the government. EE is increasingly a prominent part of school level education in Nepal for more than ten years. Considering the extent of this outflow it makes sense to think about the ultimate goal of EE that is the behavior change, thereby maximizing outcomes from the school education programs implemented.

Different researchers had found different theories related to development of REB. However, these studies were not done in Nepalese context. Since the ultimate

aim of EE is development of REB, need has been recognized for a research which explicitly explores the elements necessary for the effective implementation of school EE to our students in order to incorporate environmental concerns in an effective way. Thus the problem statement is that how can the school EE develop REB among our students?

Research Questions

In order to formulate required answers needed to the primary questions the following guiding research questions was used.

1. What are the elements that facilitated the process of developing REB among our students?
2. What are the elements that impeded the process of developing REB among our students?
3. How can school EE play its role in developing REB among our students?

Rationale of the Study

Being professionally related to environment, I had involved myself in much social work regarding environmental conservation. As I was a student of Education at Kathmandu University, I searched an endless supply of journal articles to read regarding EE. I diligently read the articles. I studiously thought critically and theoretically about the curriculum and its impact on the students. Simultaneously I was curious how people act in favor of environment. While I was professionally involved in one of the higher secondary level college, I saw most of the students devoid of environmentally friendly behavior, children throwing garbage here and there in the street, then I started wondering what they read, what they learnt till secondary level. What did all of this talk of EE mean to them? These initial questions formed the basis of my research. EE in Nepal is not a fairly new idea, and already it is

being implemented in all levels of school system. I developed this study to specifically examine how Nepali students develop REB. The study concentrated on school EE. I also realized that we live in an age in which environmental educators are increasingly being challenged to demonstrate their results, and where accountability and performance are increasingly being emphasized. The ultimate aim of EE is to ensure that effective actions are taken to conserve and enhance the environment. Thus careful reflection about and attention can provide EE professionals with concrete ideas on how to improve the management and ultimate performance of their programs. Teaching about REB is important at all educational levels. So the educationists can use the outcome of the study as a strong tool for the preparation and implementation of EE in Nepal. No other studies that assess REB among students in Nepal could be identified, so this work can be important baseline information. From this we can improve the pedagogy of EE by better understanding our children.

Definition of Terms

Environmental Education: It refers to organized efforts to teach about how natural environments function and, particularly, how human beings can manage their behavior and ecosystems in order to live sustainable. The term is often used to imply education within the school system, from primary to post-secondary as well as to educate the public and other audiences, including print materials, websites, media campaigns, etc.' (UNESCO, 1977).

Responsible Environmental Behavior: Person engaged in responsible and societal behavior on behalf of the environment (UNESCO, 1977).

Delimitation of the Study

There were delimitations in the study which were worth noting. This study was based on the data and information collected from secondary level students. Since

our secondary level students had already studied EE multiple years in the school and this is the age group which should be sensitized with REB for the future, the study group was focused on students of secondary level only. The study used primary data from observations and interviews. The secondary data were collected from the reviews of previous literatures and the theories were developed through grounded theory methodology. There were lots of activities that could be covered as an indicator of REB but due to lack of time, only environmental sanitation portion was covered.

Chapter Summary

This introductory chapter is the beginning of a quest for me as a researcher. This journey had so far taken me along the path of attempting to generate the theories associated with development of REB. This research report is the organization and analysis of these research efforts. It is organized into seven chapters, of which this is the first. The next chapter reviewed the literature in the field of EE that is specific to REB. An overview of the research was also sketched out as it is the background for this study. Chapter four gives the reader a format to the study methodology which has followed grounded theory pathway. The research was conducted based on the secondary level students. I then described in detail how the research was carried out. The results are presented and discussed in Chapter five and six respectively. Using all these bits of information, I pieced together a picture of the students' conceptions. Once I had an understanding of the students' conceptions, I developed several themes that can enhance the development of REB among our students. These themes were a springboard for interpreting the findings and discussing the outcomes. The last chapter then discusses the summary, conclusion and implications garnered from this study.

CHAPTER II

REVIEW OF RELATED LITERATURES

Prior to going towards my own research journey, I reviewed all the related literatures so as to ensure as smooth a journey as possible. This chapter reviewed the literatures regarding historical development and current trends of EE in general and also discussed in the context of Nepal. In this connection, the literature review emphasized people and environment, threat to the earth, need of protection, need of EE, and development of EE globally as well as in Nepal. Most importantly, my study attempted to analyze various researches related to REB. Thereafter the discussion was concentrated on the various teaching methodologies of EE. Besides this the study also discussed different research approaches, grounded theory and qualitative research. The following resources were used to collect the relevant information and literatures. Manual and Internet were used to find the relevant resources. The area concentrated for the literature search was 'EE and REB.' I start this chapter with the lines dedicated to our mother Earth.

> The earth is not merely a 'hotel'- it is our 'home'.
>
> It is a place, where we should not use the resources and then move to another spot for further exploration.
>
> It is a place that we should cherish and need to protect.
>
> It is not merely a 'resource' or 'retreat', which we use, enjoy and then leave.
>
> It is our Mother (UNEP, 1994).

As the above quotation has compared earth to our mother, it is worthwhile to scan human civilization since human's arrival of earth. There is no doubt in the fact that human being is at the centre of the biosphere in dynamic equilibrium with

environment-air, water and land. Human being is an inseparable component of environment and needs suitable environment for their bearing, rearing and progress. This life cycle runs with the consumption of means and resources from environment. Human life is operated with the use of the things available in the environment. Our daily life is heavily dependent on our natural environment- we get food from soil, fruits and timber from trees, medicines from plants, meat from birds and animals, fish from ponds, rivers and seas, water for daily use from springs, rivers and ground water. All the basic human needs are fulfilled from the environmental resources. We also have a rich tradition in environmental ethics. We worship Nature-sun, water, air, soil, plants and animals. Bodies of plants, animals and human beings are created out of these five essential elements and after death and decay their bodies are disintegrated and converted back to these elements (Mohapatra, 2002).

The earliest people on Earth lived by hunting animals and collecting nuts and berries for food. They used simple tools made of stone. This is why this period is often called the Stone Age. The environment and human beings are two inseparable entities. In ancient times, the needs of human beings were limited compared to the resources available. The demands of human beings were easily met, as there were enough natural resources. As a result, the functions of nature were undisturbed and whatever damage done to the environment was repaired through natural processes. There were not many people in the world, so the effect on the Earth's environment was not great. But even these few people produced some changes. They lit fires and burned down forests, and they hunted animals. So although the earliest people did not cause pollution, they began to change the balance between plants, animals and their environments. Primitive human lived in mountain caves and looked at the forces of nature with wonder and awe. They were panicky about the sun, lightning, thunder,

rains, and also wild animals in the forests. They were constantly busy in protecting themselves and their family against the hostile elements around them. Gradually they discovered fire and made stone tools for their defense against wild animals. At that time, fire, hunting and poaching, were humans' most damaging effect on the environment. About 10,000 years ago agriculture was discovered and that was the starting point of human civilization. Since then, people began to learn how to farm crops. Gradually, human beings began to settle down instead of wandering in search of food. They began to cultivate land for producing food. They felt the need of comfort and luxury for which natural resources were extracted.

Instead of moving from place to place to look for food, people settled in villages. Later, these villages grew to become larger towns. In towns, waste such as sewage began to pollute the environment. This led to the spread of diseases. Rats, fleas and other pests made their homes in towns. This was the beginning of the age of pollution. However, worldwide the total amount of pollution was still quite small. In course of time, man devised science and technology step by step and depended on these for improving their living standard.

The development of science and technology, and the way they were used by humans caused misuse of the environment and a reckless exploitation of nature which is posing a great threat to our mother Earth.

Threats to the Earth

Every year, the number of people in the world grows. Now there are about 5000 million people. By 2020, there will be about 7000 million (SDMC, 2008). The last 30 yrs saw a number of significant changes in perception about the environment and the impact of human activity on it. As our students turn on computers, surf the net, and watch endless hours of entertainment beamed via satellite dishes, our planet faces ever

increasing challenges. Environmental crises such as the greenhouse effect, ozone depletion, water pollution and over population signal devastating effects on a humanity that continues to have a poor environmental ethic and preservation track record. Rapid population growth and application of modern technologies have been adversely affecting environment.

Human beings have inflicted certain damage, which is irreparable and permanent. These include destruction of forests, loss of fertile soil through erosion, frequent floods, and shortage of fuel, energy crises, and pollution, extinction of living species and poorly planned industrial and ecological imbalances. Among the SAARC countries, a report on environmental migration to escalate tension in South Asia given by Uddin (2008), Bangladesh could face security threats due to climate change, which is likely to trigger environmental migration and cause escalation of tension between neighbors in the years to come, a global report on environmental changes. The report also stated that probable loss of arable and residential lands through flooding in this part of the world will result in increase in internal and external environmental migration and strain relations between countries. Severe floods could overwhelm the capacity of Bangladesh to deal with disasters and ultimately its capacity to provide food for the population, sixty percent of which is supported by agriculture. Like Bangladesh, according to a report given by SDMC (2008), India will also be affected due to climate change. India is ranked the fourth largest carbon emitter in the world, just behind the United States, Australia and China. The immediate effect of climate change is already noticed in India such as wheat production was in decline, leading to chronic hunger and malnutrition. The continued retreat of the Himalayan Glaciers could increase water scarcity, affecting 500 million people in South Asia. Waste products and toxic smoke from factories and automobiles have polluted the environment. It is true that human life has become more comfortable

because of the development of transportation system, modern tools and equipment, but these development and construction works have given undue pressure on the natural resources beyond their carrying capacity. Consequently, all the environmental elements have been affected badly. Natural resource is a must to run the life process of human being. Air, water, land, vegetation, minerals and all living beings are natural resources because they are not made by men. They are gift of nature. There is mutual relationship between natural resources and human beings. There is a constant process of the growth, development and destruction of the natural resources in nature. They are vital for all-individual, family, society and country. They have been lending a hand with the development of scientific discoveries and inventions, literature and new principles. They have helped for social development. Natural resources are our valuable wealth. Life exists only where there is nature. No life can exist without natural resources. They are the things of our daily consumption, and development. So natural resource is a must to run the life process of human being. Due to overexploitation of natural resources, the natural balance has been lost. Likewise when rubbish is dumped on the land, the land is polluted. Pollution spoils a clean and healthy environment. Some environments seem very unspoilt. It is hard to think that the Sahara Desert or the Antarctic are not clean. But there are no places on Earth that are not polluted. Industry, farming, cars and even our homes all add pollutants to the Earth. The air and water carry these pollutants to all corners of the Earth. All this has threatened the very survival of human beings.

As awareness of the degradation of environment came to the forefront of global consciousness over the past thirty years, recognition in Nepal of environmental conditions also increased. Nepal is one of the few countries in the world, which is rich in natural resources, like water, forest and cultural heritage Nepal is a land-locked country, 85% of its land is covered by mountains. Unfortunately its beauty and richness is adversely

affected due to environmental problems. Many global environmental threats pose potentially major adverse consequences for the Nepalese environment - ozone depletion is an obvious example. Others, such as climate change, require substantial changes in the way our economy and society utilizes energy and natural resources. In addition, we face significant challenges with respect to those environmental problems which are essentially domestic. Nepal is also the second richest country of the world for water resources. There is great potential for hydroelectricity but, due to the lack of financial support and lack of political consciousness, Nepal depends largely on wood fuel. Every year thousands and thousands of trees get cut down. Deforestation of the mountains is a major problem. It causes landslides and floods. Along with deforestation, high levels of water and air pollution are ruining our environment.

Nepal is exposed to the various types of natural disasters which vary with different geomorphic terrains. In Nepal, occurrence of natural disasters caused by environmental degradation is a regular phenomenon (Shiwaku, 2006). In the high mountains, the damages are due to landslides and debris flows whereas flood hazard is severe in the flat lying areas i.e. southern regions. Similarly, earthquake hazard has the most devastating influence at the place of origin and nearby surrounding areas (Thapa, 2006).

Inhabitants in the Himalayan region are exposed to many natural hazards. The mountain ranges are young with an unstable geology, steep slopes and a climate that is difficult to predict. As a result, the region is highly susceptible to natural hazards such as flash floods, landslides and earthquakes. In populated areas, these can lead to disaster. Vulnerable groups-the poor, women and children-are often hit hardest (Dekens, 2007). This report further stressed the fact that this country is the most disaster prone among the Himalayan region in the world in terms of number and

severity of disasters, casualties, and impact on national economies. In the Terai region, the flat lands of Nepal on the border with India, floods are a regular phenomenon (Schild, 2007 as cited in Dekens, 2007). Flash floods and riverine floods mainly affect domestic property and agricultural fields.

Climate change will have adverse impact on human health and environment, which could cause fatal diseases, loss of lives, natural calamities like flood, landslides, reduction of water level and low production of crops. Environmentalist and researchers said that climate change had direct impact on human health through pathways such as extreme weather events that causes injuries, deaths and epidemics, particularly water borne and vector borne diseases (Fuller, 1999). The experts added that local weather phenomena would be changed reversing the natural weather cycle that could cause warmer weathers in winter in hills than in Terai, shorten fog prevalence in Kathmandu valley, increase cold wave and hot waves in Terai, and decrease the number of rainy days. Baidya (2008) said that the global climate change has multiple implications on almost all spheres of life. The quality and quantity of public health could be at high risk due to the adverse effect of climate change. He said the World Health Organization had recognized climate change as one of the major challenges for health policy makers, planners, and managers as well as for scientists. In connection to climate change, Pradhan (2008) presented a paper that dealt with change in climate such as temperature with precipitation and its impact on water bodies and health of people. She said that following the global warming across the world, Nepal had also experienced rise in temperature. The past record has shown that the temperature has been rising by 0.5 degrees centigrade per decade.

Pradhan (2008) also said that the results of climatic phenomena had clearly been seen on instigating more landslides and soil erosion on the mountains, hills,

floods and siltation in the lowlands. She added that rapid growth of population and migration increased number of vehicular traffic and development activities, expansion of cultivated land of declining forests, increasing forest fires, expansion of urban built areas has led to change in local and regional climates in the country.

According to Jing (2008), human health is determined by numerous determinants that cause the attribution of the impact of climate change to health outcomes challenges. It has also indirectly affect human health through producing impact on ecosystem services which include food, water, air and regulation of disease vectors.

Besides above environmental degradation, I am not alone in my embarrassment and disgust at the sight of people throwing garbage in the middle of the Streets of the Kathmandu. ‘When will this ever stop? These people are shameless and so unhygienic, If this happens in the capital, just imagine how bad it is in the rest of the country,’ I am thinking myself. It is an every day occurrence in Kathmandu to see people throwing garbage almost everywhere, from the main streets to public parks, near school compounds, government offices and residential areas.

The most serious long-term threat facing the world is the danger that human actions are producing irreversible harmful changes to the environmental conditions that support life on Earth. If this problem is not overcome, there may be no viable world for our descendants to inhabit. This is an alarming situation and therefore great concern is expressed globally by the scientists and environmentalists. Man has vital role in the environmental conservation. Everybody is to be aware of environmental conservation and promotion. For the foreseeable future, sustainable management of the environment will be one of the greatest challenges confronting the world.

Appropriate use and management of the environmental resources is only possible from human beings, otherwise enormous decline is sure to happen.

Need of Change in Human Behavior to Reduce Environmental Problem

It has long been recognized that the root of environmental problems is human behavior. Thus only a change in human behavior can reduce these environmental problems (New house, 1990). Many other sources have written about these threats to the Earth and about the behavioral changes that will be necessary to overcome them. All of them have a common conception that enormous changes to human lifestyles and cultural practices may be required to reach the goal of a sustainable level of impact on the environment-i.e. one that can be maintained indefinitely (Stepath, 2000).

Over the years, local people, especially elders and other critical actors (e.g. 'innovative farmers') have accumulated everyday knowledge and specialist knowledge about the floods through daily observation and practical experience of their surroundings. Local people communicate about past natural disasters from one generation to another and from place to place, mainly orally, using local stories, songs, and proverbs. Songs and proverbs related to floods help people to remember past events and play a key role in building community awareness (especially for the younger generation which may not have witnessed exceptional floods). Unfortunately, local singers are leaving in search of well paying jobs outside the village and as a result of the growing use of radio and, in some cases, television. Thus the oral tradition is weakening and new ways need to be found to capture and transmit the memory (Schild, 2007 as cited in Dekens, 2007).

Most of the well known approaches to environmental management, both structural and non-structural, were tried in some part of the country or the other in SAARC region, but with limited success (SDMC, 2008). No doubt, Government

intervention was unavoidable in some cases and at some times, but it had its own limitations because of the usual inaccessibility, delay in response etc. Moreover, Government did not have an adequate and extensive machinery to reach every affected household during disaster, especially in the interior villages. Several government organizations too did not have a presence in many areas. Hence, a need to introduce public involvement in environmental management was felt. This approach was in conformity with the current trend of participative approaches to socio-economic development and welfare activities. Community participation is a process where the concerned communities function and contribute as a cohesive group to perform a predetermined activity. The basic premise behind this approach is that the involvement of the people in environmental management is expected to be more effective and useful. Such an approach also provides an opportunity to the community to meet its obligations towards its members. Community involvement would, of course, be more effective if people are fully conscious, empowered and trained. Community participation would be forthcoming if community can expect to derive visible benefits from it. People, therefore, should be provided an opportunity to play a more active role and the official machinery provides facilitating and catalytic support only. A word of caution is needed at this stage. Community participation can only mitigate the hardships and losses caused by floods. It has little effect on controlling or moderating floods. It assumes that floods would continue to come and that people have to live with them. Therefore, the Manual was developed provides guidelines to the community to face floods and to reduce the consequent losses. A major initiative towards undertaking a study on community approach to flood management was taken in 2002 by the Geneva based World Meteorological Organization, when it decided to sponsor a coordinated study on this subject in Bangladesh, India and Nepal under its Associated

Programme on Flood Management. The role of Public participation in flood management is quite important. Digging of drainage channels, soil conservation, forestation, watershed management, land use regulations and flood emergencies are the types of works where involvement of the local population was found most valuable.

Today we see many television and newspaper reports about pollution. In 1962, an American scientist called Rachel Carson wrote a book called Silent Spring. Rachel Carson wrote about the effects of a chemical called DDT. Farmers used to spray DDT on their crops to kill harmful insects. But the chemical also went into the soil, and into the plants that grew on the soil. It passed into the small animals that ate the plants, and then to the birds that ate the small animals. This chain of evens meant that the DDT poisoned not only the insects, but also plants and animals. DDT was eventually banned. Today, all around the world, scientists are trying to find ways to cut down pollution. But we must all try hard to make the Earth a cleaner place.

Today, there is a growing concern regarding the changes taking place in the natural environment. There are some of the questions, which highlight the importance of environmental protection activities in schools as well as in the communities. Hence, it is very necessary to make people aware of these issues and of the means of the protection of the environment (IUCN, 2002)

Importance of Environmental Education

All over the world, conservation strategies recognize the global threat to the earth’s survival and the needs of future generations. These concerns have education as a common denominator in an attempt to find solutions. It is the people's education which holds the key to environmental management and good quality of life. Only an informed motivated and committed citizen can provide the necessary base for the continued protection and conservation of the environment.

When the international community confronted with a wide range of transboundary environmental problems, it was recognized worldwide that these problems reflect a need for global commitment to sustainability which culminated at the Earth Summit in Rio De Janeiro in 1992 when 150 nations (including Nepal) endorsed the Agenda 21 document, which provided a framework for sustainable development strategies at all levels. According to Brown and Gabaldon (1993), the area of environment requires large-scale participation of people. Like democracy, sustainable development will require wide spread civic participation at all levels of decision making as its cornerstone, and quality participation requires quality education. As noted by Nicholas Polumin, a well-known environmentalist has said that enlightened understanding by a human being of his or her environment is a prerequisite to saving it.

Several researches believe that the strategy to combat environmental degradation is through EE, this approach is one of the most important. A written, Agenda 21, the global environmental and developmental strategy for the United Nations Conference on Environmental and Development, ‘'Education is critical for achieving environmental and ethical awareness, values and attitudes, skills and behavior consistent with sustainable development and for effective public participation in decision-making' (Ryking, 1999; Timilsina, 2004; UNCED, 1992). EE has covered a big range of knowledge skills and attitudes because there is numerous living and non-living things they are either direct or indirect concerned to the human activities. It is also important to know about the nature and their relation to human activities. Therefore it is essential to develop environmental awareness in the human being for the sustainable development of environment. This awareness can be developed satisfactorily if one can have opportunity to learn different knowledge and skills

through practical experiences. For this purpose, it is crucial to have knowledge on various types of relevant literatures for the better understanding of EE. There could be various types of literature related to this field. Some of them were reviewed in the following paragraphs. Realizing this, some of the following literatures were reviewed to explore the main notion of EE and its relation to Nepalese education.

The pursuit of deeper theories and broader practices of EE are among the most important tasks facing us as we aim to solve global environmental problems and build a sustainable society in the 21st century (Banedict, 1999; JSEE, 2008; Reichel, 1999; Warner, 2004). Educators accentuate that if understanding of environmental issues is developed at the school level, it can go a long way to limit and stop the slow destruction of earth's natural resources.

Development of EE

The term EE as a distinct entity, is not of recent origin, the environment had been associated and had been a source of education from the very early days of human civilisation. There are several principles of importance to the human future that can be distilled from the teachings of religious - principles relating to the inevitability of the consequences of one's actions, the interconnectedness of all things, the linkage between past, present and future, the integrity of the human family, the harmony that is necessary between humanity and the natural order and many others. Below are the examples of environmental values depicted in different religions.

The Relation of Hinduism and Environment

In Hindu religion, godhood is considered to be diffused throughout the universe and nature. Divinity, according to Hindu religion, has been present all over, including mountains, rivers and forest, in plants and grass, and animals and beast, in snows and planet, in earthquakes and in lighting and thunder. Thus the Hindu divinity

has never being a single or a unique almighty super being. Human beings have always been made conscious of their obligations and duties towards nature, its creatures and universe. Hinduism offers a unique set of moral values and rules to guide human beings in their relation with the environment. Religion also provides sanctions and offer stiffer penalties such as fear of damnation, for those who do not tract God's creation with respect. It is clear that the most ancient texts on Hinduism demonstrate through the praise of the deities an ecological awareness and great respect for the natural world. There are many specific teachings on environmental matters contained in all these writings and ecological activists have drawn much inspiration from the text. A few examples are: 'Do not cut trees, because they remove pollution.' Rig Veda; 'Do not disturb the sky and do not pollute the atmosphere.' Yajur Veda; Destruction of forests is taken as destruction of the state, and reforestation an act of rebuilding the state and advancing its welfare. Protection of animals is considered a sacred duty. All of this is an enormous source of concepts, principles, traditions and practices which is of deep relevance to the study of the future of humanity and of the long-term perspectives which it is so essential to bring into the thought-frames of the present generation.

The Relation of Buddhism and Environment

Buddhism is a religion that places great emphasis on environmental protection. Sakyamuni Buddha was born at Lumbini Garden. He engaged in spiritual practice in the forest, attained Buddha hood under a tree, and first began preaching at Deer Park. (Sheng-yen, 2007). Gautama Buddha can be identified as the first environmentalist who introduced the concept of sustainable development. World leaders, in an unprecedented move, meet frequently shedding their political differences to discuss environmental issues such as global warming. They further discuss simple way of life,

sustainable utilization of natural resources and conservation of bio diversity. In this backdrop, they asserted that it is pertinent to revisit Buddhist principles in the light of modern theories in environment protection.

Buddha told us in the sutras and precepts that we should take loving care of animals, and that we should not harm the grass and trees, but regard them as the home where sentient beings lead their lives. Therefore, Buddhists regard our living environment as their own bodies. Buddhists' life of spiritual practice is by all means very simple, frugal, and pure. The wasteful consumption of natural resources and destruction of ecology are caused by humankind's psychological craving for convenience and wealth. The practice the Buddha's teaching is of ‘leading a contented life with few desires’ and ‘being satisfied and therefore always happy’, so if people can use their intelligence to deal with problems and engage diligently in productive work, then, without having to contend with one another or fight with nature, they can lead very happy lives. The following four sentences were used to encourage one another in some Buddhist organizations.

“Our needs are little;

Our wants are great.

Pursue only what we really need;

What we want is unimportant.”

(Chandim, 2007)

If, for the sake of satisfying our wants, humankind consumes natural resources and devastates the ecological environment, then we repeatedly borrow to repay what we already owe. By borrowing to cover old debts, one's debts will grow increasingly heavy; by cutting out one's flesh to appease one's hunger, one is slowly committing suicide. Unfortunately, humankind loses its head for the sake of temporary

convenience and selfish gains. Some say that future technology will be able to rectify the errors caused by modern people. Supposedly, this future technology will be able to solve the problems resulting from contemporary technology. Further, they say if one group of people causes problems, another group of people will manage to deal with them. They imply that the act of destruction should come first before humankind achieves more advanced insight. These are extremely irresponsible concepts. While engaging in various kinds of production and manufacturing, if modern people do not at the same time pay close attention to measures for protecting the environment and cherishing their resources, this amounts to burying mines everywhere in the environment to menace future generations of humankind. So, we have to appeal to the religious and spiritual leaders of the whole world not only to pray for the success of environmental work, but also to get involved personally in the all-encompassing movement of environmental protection.

Environmental protection must be combined with our respective religious beliefs and philosophical thinking into an earnest mission, so that environmentalism will not become mere slogans. So, strictly speaking, the purification of humankind's mind and heart is more important than the purification of the environment. If our mind is free from evil intentions and is not polluted by the surroundings, our living environment will also not be spoilt and polluted by us. However, for ordinary people, it is advisable to set out by cultivating the habit of protecting the material environment, and go deeper step by step until at last they can cultivate environmentalism on the spiritual level.

Buddhism is replete with perspectives on the long-term future. It stresses at every stage the fleeting nature of the present and the transitory nature of present acquisitions. The noble eight fold path consists of right vision, right thought, right speech, right

action, right livelihood, right efforts, right mindfulness and right concentration. Treatises could be written on the relevance of each of these to the human future. On right livelihood for example Buddhist teaching requires every person to consider the manner in which the performance of his duties as employee would impact on society and the future. Buddhism has been the inspiration in recent times for much practical work on environmental protection. It is often ranged against governments which seek to improve their economies by rapid 'development' which often takes the form of damaging the environmental heritage. The practical movements Buddhism has inspired in several countries are of importance to the rest of the world. To quote a recent review of this activity, there has been a kind of Buddhist revolt against the deterioration of nature' in countries like Thailand. King Asoka's 5th Pillar Edict stating that he in fact placed various species of wild animals under protection is one of the earliest recorded instances of a specific governmental policy of conservation. Also, in Sri Lanka, edicts were issued that not a drop of water was to be permitted to flow into the sea without first serving the needs of agriculture. There were also royal edicts prohibiting the felling of virgin forests. Buddhism is very clear in its teaching that often the cause of wrongdoing is ignorance rather than wickedness or sin. The natural corollary of this, in the context of the environment, is the need for EE. It consequently becomes the duty of those interested in the environment to spread knowledge regarding the damaging consequences of the environmental destruction we take for granted (Weeramantry, 2007).

The Relation of Islam and the Environment

Islam, as a way of life expects human beings to conserve the environment for several reasons. Its concern for the environment appears in many Quranic verses. According to that Allah is he who raised the heavens without any pillars. He has

subjected the sun and the moon. Each one runs for a term appointed and it is he who spread out the Earth and set there on mountains standing firm, and flowing rivers and fruit of every kind. He made in pairs, two and two. All this is God's creation and Muslims should therefore seek to protect and preserve their environment. Moreover by so doing they protect God's creatures that are not merely objects but are believed to have a spirit and purpose of their own. They are in fact believed to pray to God and praise him. The Islamic attitude of duty towards the environment is not merely derived from the fact that God is its creator. There are other reasons as well. One is that humans act as the agents of God on earth. This agency is not blind and mechanical but is creative in its own way and moreover it must be fulfilled by operating according to God's instructions. Another reason why, in Islam, humans are expected to protect the environment is that no other creature is able to perform this task. Humans are the only beings that God has entrusted with the responsibility of looking after the earth. This trusteeship is seen by Islam to be so onerous and burdensome that no other creature could accept it. It is impermissible in Islam to abuse one's rights as khalifa (agents or trustees), because the notion of acting in ‘good faith’ underpins Islamic law. The planet was inherited by all humankind and ‘all its posterity from generation to generation. Each generation is only the trustee. In other contexts, the concept of khalifa refers to the fact that waves of humanity will continuously succeed each other and inherit planet earth. Being mindful of the needs of current and future generations is an important aspect of piety in Islam. In the words of the hadith, ‘Act in your life as though you are living forever and act for the hereafter as if you are dying tomorrow’ (Izzi, 1990 as cited in Weeramantry, 2007).

Reviewing the above religious connection with environment, it can be viewed that every religion underlines the value of maintaining harmony between man and

nature. In Hinduism there are many symbols that are directly related to environmental symbols, such as the vehicles of god and goddess, the worshipping of different parts of the environment (water, soil, air, etc.). Symbols are not the same for the hill and terai. According to Hindu mythology, Tulsi is the symbol of Lord Vishnu, everything in the world has some characters of God and Goddesses (Milan, 2002). Religion is another name of trust. The thing which is deeply adopted inside the mind by oneself as 'this is mine', 'this is right' or 'this is so', such concept is known as religion (Shakya, 2002). Thus, when the concept that if we touch the fire it will burn us comes to mind, we'll be afraid to touch it. It is our belief that the fire burns. When the concept that the fire shouldn't be touched becomes strong in the mind, it becomes our faith not to touch the fire which shows a sense of fear. To speak of human faith, it is applicable to every object. For instance, man's neighbors are birds and animals. The religion teach us that the relation of man with these creatures should be fully humane and if people feel proud to be wise, they must quit to trouble and dominate them, otherwise it will not be approved that there's humanity in mankind; because of the pride of power in men, the unjust to beast becomes the remote behavior than the humanity. Thence to establish harmonious and kind relation between man and man and other living beings is the human faith. We have also learnt from Dhammapada that Buddhism has furnished man the noble eight-fold path as the only path for living the right life. The eight steps of the noble path are right understanding, right thought, right speech, right action, right livelihood, right effort, right mindfulness, and right concentration. According to changing times and circumstances, it is not a matter of surprise, however, according to the nature of the universal laws that some inconsistencies, contradictions and deformations did appear in this, in course of facing different kinds of circumstances during different phases of history. Difference of

opinions arose in the original teaching which, in course of time, became sub-divided in the form of different religions. But whatever kinds of creeds and credos have appeared later, the main goals and destinations of all of them was, is and ever will be the same-that is, achievement of peace and happiness. No matter whether it is Hindu philosophy, Buddhist philosophy or Islam philosophy, all have tried to give a common message that we must conserve our environment. Verily, this is what the whole world is in need today.

Although, in the recent world, religion are not in the forefront of protecting the environment from human greed and exploitation, we have to acknowledge the role of religion in EE and it can be believed that EE will remain incomplete until it includes cultural values and religious imperatives.

In the western world, the evolution of EE has incorporated the significant influence of some of the 'great' eighteenth and nineteenth century thinkers, writers and educators notably Rousseau, Froebel, Dewey and Montessori (Palmer, 1998). They propounded different environmental thoughts, principles, theories and their practices in the teaching learning activities. They were generally based on conducting teaching learning activities in the nature using different natural resources. Later the term EE was introduced in different time at different countries. However, the understanding and practice began to change in the seventies.

The United Nations Education Scientific and Cultural Organization (UNESCO) and United Nations Environment Program (UNEP) created three major declarations that have guided the course of EE.

Stockholm Declaration

June 5-16, 1972- The Declaration of the United Nations Conference on Human Environment. One of the landmarks in the history of EE was the 1972 Stockholm

conference on human environment organised by UNESCO. The document was made up of 7 proclamations and 26 principles to inspire and guide the peoples of the world in the preservation and enhancement of the human environment.

The Belgrade Charter

October, 13-22 1975-The Belgrade Charter was the outcome of the International Workshop on EE held in Belgrade, Yugoslavia. The Stockholm conference was followed by International EE Workshop held Belgrade in October 1975. The Belgrade Charter was built upon the Stockholm Declaration and added goals, objectives, and guiding principles of EE programs. It defined an audience for EE, which included the general public. Then the Belgrade workshop was followed by regional workshops.

Tbilisi Declaration

October 14-26, 1977-The Tbilisi Declaration noted the unanimous accord in the important role of EE in the preservation and improvement of the world's environment, as well as in the sound and balanced development of the world's communities. Tbilisi Declaration updated and clarified Stockholm Declaration and Belgrade Charter by including new goals, objectives, characteristics, and guiding principles of EE. Tbilisi conference held in October 1977 was the first inter government conference on EE. The conference recommended for the application of EE in formal and non-formal education. They were largely based on the principles outlined at the Belgrade conference. Various papers were presented in the conference, which can be regarded as foundation for the development of EE. They developed various useful recommendations for the effective improvement of EE. It emphasized that the pupil should be provided opportunity to get experiences through involving in different activities that are relevant to solve current problems. Tbilisi report also

recommended different aspects needed for the development of EE. They were mainly focused on children oriented activities, such as life long process, interdisciplinary, holistic approaches emphasizing interrelationship between human and natural systems. These methods respect the child centered teaching learning activities. The conference further classified EE objectives in two broad dimensions. First knowledge and understanding includes knowledge about the variation of issues in different levels and approaches to address the situation. Second, skills refer to identifying and communicating, as well as participation in-group discussion.

Thus, it shows that situation began to change in the seventies. In response to the ecological consideration highlighted primarily by conservationists school curricula became more and more concerned with environmental problems.

Different agencies and organizations were then established for the sake of promoting EE. They were IUCN, UNESCO and other organizations that played meaningful role for the promotion of EE. Palmer (1998) claimed that, ‘probably the greatest landmark in the history of attempting to define the term EE was an IUCN/UNESCO ‘international working Meeting on EE in the school curriculum’ held in 1970 at the USA. The classic definition formulated by the meeting was as follows, EE is the process of recognizing values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the interrelatedness among man, his culture and his bio physical surroundings. EE also entails practice in decision-making and self-formulation of a code of behavior about issues concerning environmental quality (UNESCO, 1977).

The developmental history of EE indicated that, it was modified according to the needs of the pupils that are necessary to adjust with their environment. In the United States some of the antecedents of EE were Nature Studies, Conservation

Education and School Camping. Nature studies integrated academic approach with outdoor exploration (Roth, 1978). Conservation Education brought awareness to the misuse of natural resources. School Camping was exposure to the environment and use of resources outside of the classroom for educational purposes. The legacies of these antecedents are still present in the evolving arena of EE.

EE has been considered an additional or elective subject in much of traditional K-12 curriculum. At the elementary school level, EE took the form of science enrichment curriculum, natural history field trips, community service projects, and participation in outdoor science schools. In secondary school, environmental curriculum became a focused subject within the sciences or is a part of student interest groups or clubs. At the undergraduate and graduate level, it is considered its own field within education, environmental studies, environmental science and policy, ecology, or human/cultural ecology programs (Lacey & Williams, 1990; Martin, 1999).

Different associations have established their guidelines for EE. As an example, The North American Association for EE (1998) has established the following 'Guidelines for Excellence' for EE: 1. Fairness and accuracy: EE materials should be fair and accurate in describing environmental problems, issues, and conditions, and in reflecting the diversity of perspectives on them. 1.1 Factual accuracy. 1.2 Balanced presentation of differing viewpoints and theories. 1.3 Openness to inquiry. 1.4 Reflection of diversity. 2. Depth: EE materials should foster an awareness of the natural and built environment, an understanding of environmental concepts, conditions, and issues, and an awareness of the feelings, values, attitudes, and perceptions at the heart of environmental issues, as appropriate for different developmental levels. 2.1 Awareness. 2.2 Focus on concepts. 2.3 Concepts in context. 2.4 Attention to different scales. 3. Emphasis on skills building: EE materials should build lifelong skills that

enable learners to address environmental issues. 3.1 Critical and creative thinking. 3.2 Applying skills to issues. 3.3 Action skills. 4. Action orientation: EE materials should promote civic responsibility, encouraging learners to use their knowledge, personal skills, and assessments of environmental issues as a basis for environmental problem solving and action. 4.1 Sense of personal stake and responsibility. 4.2 Self-efficacy. 5. Instructional soundness: EE materials should rely on instructional techniques that create an effective learning environment. 5.1 Learner-centered instruction. 5.2 Different ways of learning. 5.3 Connection to learners' everyday lives. 5.4 Expanded learning environment. 5.5 Interdisciplinary. 5.6 Goals and objectives. 5.7 Appropriateness for specific learning settings. 5.8 Assessment. 6. Usability: EE materials should be well designed and easy to use. 6.1 Clarity and logic. 6.2 Easy to use. 6.3 Long lived. 6.4 Adaptable. 6.5 Accompanied by instruction and support. 6.6 Make substantiated claims. 6.7 Fit with national, state, or local requirements. Different literature recommended that classroom practices of EE must be designed to enhance the action competence of the pupils that enable them to address the issues.

EE has crossover with the disciplines of outdoor education and experiential education. Both disciplines complement EE yet have unique philosophies. Outdoor education means learning 'in' and 'for' the outdoors. It is a means of curriculum extension and enrichment through outdoor experiences' (Hammerman, 1980). EE is often taught or enhanced through outdoor experiences. The out of doors experience while not strictly environmental in nature often contain elements of teaching about the environment. Experiential education is a process through which a learner constructs knowledge, skill, and value from direct experiences. Experiential education can be viewed as both a process and method to deliver the ideas and skills associated with EE.

While each of these disciplines has their own objectives, there are points where both disciplines overlap with the intentions and philosophy of EE.

One of the current trends within EE seeks to allow students to make informed decisions and take action based on experience as well as data. Within this process, environmental curricula have progressively been integrated into governmental education standards. There is a movement that has progressed since the relatively recent founding of the idea of EE in industrial societies, which has transported the participant from nature appreciation and awareness to education for an ecologically sustainable future. This trend may be viewed as a microcosm of how many EE programs seek to first engage with participants through developing a sense of nature appreciation which is then translated into actions that affect conservation and sustainability.

Reviewing the developmental history of EE, I found that the term EE is not so much old in our formal education system but it has very ancient roots in our culture. The area of EE has been discussed much at several seminars, workshops, conferences and produced various deliberations. EE is defined comprehensively to include all relationships between humans, all that impact upon them and all that they impact. EE as an independent field of study arrived on world scenario in the early seventies. They have recognized the urgent need of EE, proposed the meaning, needs and the courses of content of EE that need to be taught to the students of education. There were lots of discussion in those seminars, workshops and tried to define the term EE. Those definitions have tried to understand the concept of EE. All the definition is in line with what is common is knowledge, attitude, and skill and therefore stresses the participatory aspect. Under EE, theoretical and practical aspects are emphasized. Several important points were emerged from the deliberation of the conferences on

EE. These were formulated to help children and general public towards knowledge, attitude, awareness, skill and participation.

With the global advancement, many new developments have taken place in the field of education. The conventional ideas about teaching are proving obsolete and inadequate. With the changing times the expectations from teachers have also increased. In EE, the focus is mostly on helping people develop factual knowledge and foster positive perception about the natural environment. For many, EE is both theoretical and practical as it is learning how to manage and improve the relationship between human societies and the environment. One of the most fundamental pedagogical approaches of EE I feel is that it must lead to actions which result in better environmental outcomes, not simply the accumulation of inert knowledge or impractical skills.

Development of EE in Nepal

Nepal's ability to meet environmental threats at home and abroad is inextricably linked with the priority it places on effective EE. The status of EE in Nepal can be described in terms of formal education and non-formal education. Formal EE in Nepal started only from mid nineties by the gradual inclusion of EE in primary to secondary school curricula. EE has also been included in higher education. Besides the EE in formal sector, non-formal and informal EE was commenced by private sectors and NGOs as early as from late 80s and early 90s. Government of Nepal had always put high emphasis on the partnership approach in EE particularly in non-formal and informal sectors. Government of Nepal has given highest priority to develop competent manpower in the field of environment management to promote the sustainable development in our development endeavor.

The New Education System Plan of 1971 included many topics related to environmental conservation in Science and Geography courses. Courses in lower secondary school such as Health and Physical Education, Social Studies and Science included environmental and socioeconomic themes. The National Conservation Strategy (NCS) for Nepal completed in 1987 and was then endorsed as a policy document by Nepal Government (NG) in 1988. A National Conference on EE in 1991 considered draft National Environment Education Guidelines, which then became a consensus policy document. The National Commission for Education (1992) recognized the need for EE at the school level and recommended the introduction of new subjects at the primary, lower secondary and secondary levels. The Eight Plan (1992-1997) also included programs on the incorporation of EE into formal and non-formal education programs. The Ministry of Environment and Population was established in Nepal in 1995 to develop policy and programs related to the environment and population. The Ministry of Education translated national policies and popular desires into school level curricula and textbooks. IUCN in coordination with the National Planning Commission implemented the Environment Education Program of the NCS Implementation Project. The ultimate goal was to integrate environmental concerns in formal and non-formal education, especially in national programs. The developments of EE at different levels are presented below.

Primary Level

EE for Primary Schools Program under the National Conservation Strategy Implementation Project was initiated in 1990 and completed in 1992. The twelve days teachers' training in EE was also organized which helped teachers to develop their knowledge and skills of teaching EE in primary schools (Karki & Pandey, 1998)

Lower Secondary Level

The calendar of operations for the curriculum on population and EE was implemented in 1994/95 for class 6, in 1995/96 for class 7, and in 1996/97 for class 8 (Karki, Pandey, & Thapa, 2001)

Secondary Level

The High Level Educational Commission, 2055 of 1998 recommended an integrated course, Health, Population and EE as a compulsory subject and Environmental Science as elective subjects.

Higher Education

The curriculum for higher secondary education includes EE at grade 12 as an elective subject and now Higher Secondary Education Board is incorporating for grade 11 too. In collaboration with IUCN Nepal, the FOE at TU has developed a curriculum for a three year Bachelor's degree program. This includes two elective courses on environment education. In KU, Post Graduate Diploma program started in 2007 with support from Norwegian university and now running M.Ed. program in EE and Sustainable development.

In other sector, several training programs of different durations were being conducted through government offices, international non-government organizations and local non-government organizations. Some initiated a project to promote improved measures and public awareness of air pollution. Regular reports and lectures on the results of the survey were used in classes of primary and secondary schools, educating the students on simple measurement techniques for air pollution. The others carried out basic studies in the Western Nepal where the cutting of tress for the daily needs of the local people was accelerating the deforestation of the area. Governments at all levels are working to meet these and other difficult environmental challenges. Several programs are

initiated that taught children the skills important to success in the new century. Different organizations are working on the different parts of the rural areas, mainly in environment sector. Different community best non-profit membership organizations are established that are concerned with environment awareness in the masses & performs social work. It organizes various programs for & with local communities with objective of improving live hood & security of local people, empowering them & enhancing conservation efforts. Their focus is to create public awareness on the environmental issues, awareness program such as how to reduce the air pollution origination from petrol, diesel & LPG Vehicles in the valley. This is done by dissemination of information on the environment & economical problems caused by the adulteration by the fuel. The Centre for Nepal Environmental and Educational Development (CENEED, 2002) worked for the conservation of biodiversity by EE to all types of people. The CENEED centre has established Swayambhu Environmental Park at the premises of Swayambhu World Heritage, one of the world heritage sites designated by UNESCO in 1978 where CENEED developed this park with the cooperation of CENEED Support Group in Japan. This centre is working for the 38 hectare of forested land covered by the Swayambhu World Heritage where there are more than 400 species of plants, 95 species of beetles, 68 species of butterflies, 11 species of animals and 98 species of birds recorded at the time of writing. Nepal is rich in biodiversity and the beauty of the country is only witnessed by conserving such sites, where people of all kinds, including tourists, can get to know the country by observing nature close-up. CENEED has a slogan ‘to make greenery everywhere by using indigenous species of tree and other categories of plants and conserve the heritage for the future.’ They emphasize the importance of the youth, who can both benefit from and contribute more to nature conservation for a better world in the context of global warming, presenting a threat of concern to all. EE is very useful for

awakening the people and encourages them to work for a better future for their children. An educational program was organized at SEP which was targeted to the youth of the local surrounding who have drug addiction problems to encourage them to change their ways and live like responsible citizens. The database of EE related organizations are listed in Appendix O. In case of informal Education, the sources are newspapers, journals, radio, television and libraries. These are the effective means of disseminating knowledge regarding environmental problems and issues to the public. Both the general public and students alike utilize these sources to expand their knowledge on the environment. Radio broadcasts conservation-oriented programs and encourages the public to participate in various conservation initiatives such as Youth awareness environmental forum broadcast Radio F.M. Cycle radio F.M.104.2 MHz. These programs are directly related to public and social activities. Television aims documentaries on a regular basis on environmental conservation. It is an influential medium, which has a great potential to raise public awareness about environment conservation. Nepal has a large number of registered newspapers and magazines which publish articles on environmental issues and their impact on the public. The print media can play a significant role in making the public aware of various aspects of the environment and its conservation (Pande, 2000 as cited in Karki, 2001). UEI is publishing a monthly environmental magazine ‘Public Voice’ since its establishment in 1994 A.D. The magazine deals only on environment. This magazines raises voice against anti-environmental activities as smoke pollution caused by the adulteration of fuel, deforestation, stone mines & so on. They are also raising voice against brick industries to regulate in the valley looking after the pollution. Of the valley as the shape of the valley is like a tub & the smoke & the dust freeze on the air of the valley.

Various Goals of EE and its Relation with REB

Even though the terms of EE came with many names or terminologies, from the Nature Study, Outdoor Education, Conservation Education, and so on, in general, EE, is meant to educate students and people, not only to be more sensitive to what is happening surrounding them, but also to participate positively in protecting and maintaining the environment so that we can be living in the more comfortable and harmonious way, as stated by UNESCO in 1975 during the Belgrade Charter, 1977 and the Tbilisi Declaration, 1977.

The Tbilisi Conference in 1977 endorsed goals of EE into five categories. They are: awareness- to help social group and individuals acquire an awareness of and sensitivity to the total environment and its allied problems; knowledge-to help social group and individuals gain a variety of experience in and acquire a basic understanding of its associated problems; attitudes- to help social group and individuals acquire a set of values and feelings of concern for environment, and the motivations for actively participating in environmental improvement and protection; skill- to help social group and individuals acquire skills for identifying and solving environmental problems; participation- to provide social groups and individuals with opportunity to be actively involved at all levels in working toward resolution of environmental problems

Goals and objectives of EE programs have included developing students with knowledge, skills, positive attitudes and motivation to take action, to prevent and to resolve environmental problems. The traditional view toward education is that if students are taught knowledge and become aware, their attitudes will be changed and their actions will be altered to coincide with the new knowledge. The knowledge-attitude-behavior change model described by Matthews and Riley (1995) holds that an increase in knowledge will lead to a change in attitude which will in turn influence

behavior change. However, studies showed that the linear relationship does not accurately represent the human learning process. Knowledge generation in itself will not be sufficient to build adaptive capacity in social-ecological systems. Generating knowledge does not mean that knowledge is understood, memorized and used. In other words, knowledge generation is different from knowledge assimilation (Dekens, 2007).

In fact, studies demonstrated that there is moderate to no relationship between awareness, attitudes, and participatory action (Gigliotti, 1990; Hines, Hungerford, & Tomera, 1987; New house, 1990). Awareness is realizing that a problem exists, not necessarily include rectifying the problem. New ideas and fresh approaches are needed to help people translate awareness and attitudes into action. Awareness is only a first step in the process of REB, not an end in itself (Stepath, 2000). Awareness of environmental issues is not enough to preserve our world of limited natural resources. Students must also be prepared to recognize their environmental responsibilities and act upon them. This involves behaving in ways that sustain and nurture the natural environment and consider the needs of others. EE is distinguished by its emphasis on 'REB' and informed citizen action, in addition to the acquisition of knowledge about the environment. Although 'attainment of knowledge' may meet the strictest definition of EE, the real goal is to develop REB and improved environmental quality (UNESCO, 1977). EE needs to present the problem as well as the solutions, and also give the students practice with generating their own solutions. This will not only strengthen their creative problem-solving skills, but may also positively impact the actual problem.

EE is focused on the development of responsible individual and societal behaviors, based on a consensus of past and current goal statements and definitions generated by environmental educators on the national and international levels (UNESCO, 1977). According to Carew (1991), the targets for EE are divided into

three categories. The first includes all those whose job is to guide in the management and use of resources-professionals, technicians, teachers, trainers and extension workers. The second category covers children of school age, and the third is the 'users' who are primarily subsistence agricultural communities but increasingly include urban dwellers and industries. Each of these target groups requires an approach to EE tailored to meet their specific needs, but the basic aim remains the same. Through EE, people can acquire appropriate knowledge and skills to help them adopt socially and environmentally responsible lifestyles. It is indicated that a good knowledge of environmental concepts is not sufficient; knowledge of environmental issues, issue skill analysis, and attitudes and values related to taking action are also necessary for the individual to take action and to act responsibly. Individuals who exhibit REB on a broad range of problems have: (1) Knowledge of relevant environmental concepts; (2) Knowledge of environmental problems and issues; (3) Concern for the quality of the environment; (4) Knowledge of action strategies that may be used for resolving an issue; (5) Belief that their action can make a difference. (6) Commitment to take action; and (7) Experience in action based activities.

In the synthesis of research on REB, Hungerford and Volk (1990) recommended critical components for EE programs. They stressed that these educational components should appear in the school level curriculum in a developmentally and instructionally appropriate manner which can maximize opportunities to change learner behavior in the environmental dimensions. 1. Teach environmentally significant ecological concepts and the environmental interrelationships that exist within and between these concepts. 2. Provide carefully designed and in-depth opportunities for learners to achieve some level of ES which will promote a desire to behave in appropriate ways. 3.Provide a curriculum that will result in an in-depth knowledge of issues; the skills of

issue analysis and investigation as well as provide the time needed for the application of these skills; the citizenship skills needed fro issue remediation as well as the time needed for the application of these skills. 4. Provide an instructional setting which will increase learners' expectancy of reinforcement for acting in responsible ways i.e. attempt to develop an internal locus of control in learners.

It is believed that environmental learning experiences can provide an awareness of who we are and how we relate to the world around us. EE courses can aid in reaching this goal by teaching about REB. Such teaching will provide sound information and strengthen motivation and behavioral skills that are necessary to make the needed changes in behavior and lifestyles (Oskamp, 2002). Zelezny's (1999) meta-analysis is important in its assertion that educational interventions can effectively improve environmental behavior. EE enables the citizens to design, devise and plan their actions in harmony with the environment. The best way to promote awareness for environmental issues and promote environmentally responsible behaviors is through increased access to EE (Barrette, 2005). We know that only through the education of children we will be able to transmit our worries about the environment in such a way that respect and care for nature will be introduced in their lifestyle and relationship with the environment so as to create the solid basis for the future. With this 'awareness' we hope to put life into literary and artistic creation for children to respect the environment.

A large number of environmental organizations exist around the globe. Many of these groups try to garner support for their respective causes by educating the public about environmental issues to promote awareness and concern. The goal was to expose people to different environmental issues of concern with the hope that exposure will lead to interest and result in action. For example, the 'Reduce, Reuse, Recycle' (3R)

campaigns had a lot of success in schools across the country. In many cases, children were able to take the information they had learned to their parents and families to help to spread those kind of education (Falik, 1969). Students in some schools have even worked with teachers to establish more extensive environmental programs. The EE program contributed to raise the awareness of importance of the environment and the need for its protection, keeping their villages clean on their own initiatives, cleanliness of the school compound and its surroundings, keep waste papers and litters in their proper places, and use toilets properly, take care of plants, orchards and kitchen gardens, protect environmental assets such as birds and animals, conserve the land, water resources and forests through controlling deforestation and proper utilization of resources.

Bryant, Searl, and Velle (2005) conducted a study in which they presented an instructional unit on environmental problems to kindergarten students. The researchers found that students appeared more environmentally conscientious at the conclusion of the EE unit. In another study, Jaus (1984) assessed the short- and long-term impacts of environmental instruction on the attitudes of third graders which found positive environmental attitudes among students. Additionally, Driver and Johnson (1983) studied the long-term benefits of the Youth Conservation Corps program, which indicated that they had become more environmentally aware as a result of the program. In the case of CFC emissions and ozone layer depletion, scientists were able to identify the problem of a hole in the ozone layer and then conduct studies to understand the cause. It was then necessary for other individuals to develop an effective policy solution to address this problem. In 1987, the polluting countries of the world signed a document called the Montreal Protocol. The Montreal Protocol serves as an example of an international policy agreement to address the problem of ozone depletion. Under

this agreement, countries banned the use of CFCs, which had been shown by scientists to have negative effects on stratospheric ozone. This example shows that there is a need for individuals who understand different elements of the natural sciences and social sciences in order to promote the effective development of programs to address existing and future environmental problems (Foley, 2004). The independent process of connecting information may not be challenging for college students, but might not be so easy for school students. This makes it more important for younger students to have opportunities to apply their knowledge in a formal classroom setting in order to reinforce the concepts they have learned. Teachers may further encourage understanding by designing lessons to challenge students to exercise critical thinking and problem solving. In general, EE focuses on making people aware of environmental issues and promotes an understanding of the relationship between humans and their surrounding environment. As people gain a greater understanding of environmental issues, it is hoped that concern for these issues will follow. One clear example of success can be seen from Rachel Carson's book, Silent Spring, which helped to make people aware of the negative effects of pesticides on the environment. This work played a large part in gaining public support to push for an end to DDT use in the United States.

There are many examples of the countries that have implemented EE in their school curricula. Among them few are included in this report such as in Europe, EE was established in 1981 which worked as a vehicle for raising public awareness of the problems in this field, as well as possible solutions, and to lay the foundations for a fully informed and active participation of the individual in the protection of the environment and the prudent and rational use of resources. Since the conception of eco-schools, it has proved faithful to the doctrine 'think globally, act locally' by

illustrating the importance and benefits of individual and group action at the local level. Likewise the Government of Cambodia has given a high priority to EE, because the government found that EE provided the necessary knowledge, values and skills to understand the complexities of environmental issues and their consequences in the overall development of the country. In Maldives, the EE course increased students' interest in the fisheries industry, which is vital to the economy of the Maldives. In India, an awareness campaign on 'disaster management for school children' was organized.

Schools in many countries emphasize EE and ethics as they prepare students to be environmental stewards. Sustainable development and environmental protection are integrally related. The 1987 Brundtland Report defined sustainable development as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs.' The Earth Summit highlighted the importance of EE in furthering sustainable development goals. Canada, Australia made an activity-based EE program for all grade levels, focuses on energy conservation, waste reduction, and water conservation. Germany had launched a national campaign in 2004 to encourage the purchase of environmentally-friendly school supplies.

Following the lead of Western countries, Nepal initiated its curriculum development and programs about EE. EE in Nepal aims 'to make individual aware of their environment and its problems and help them to understand the effect that human choices have on the environment. The future of the Nepalese people, which largely depends upon the environment, has beings on the strong commitment, hard work, and interest of the people themselves (Schild, 2007 as cited in Dekens, 2007). To improve the situation, developing an environmentally conscious citizen will play supportive role for the promotion of balanced environment.

Problems of EE

We all know that the definition of EE is the process of transferring wisdom, knowledge and information to a learner so that the learner is able to modify his/her overall behavior towards the realization of a sustainable society. Despite the fact that EE was declared a global assignment, Apel and Camozzi (1996) showed many gaps and inconsistencies. He found that although many policies on paper existed for EE, formal application was often ad-hoc and inconsistently applied according to the individual teacher's preferences and availability of resources. What does exist was very elementary.

It is a common fact that the exact approach of education depends on the type of learners, their ability, the learning environment and so forth. However, the research works carried out in the first phase (1998-2002) under the rubric of the EE Project indicated that varieties of pioneering activities in the Asia-Pacific region is saddled with a diverse range of problems such as rigid curriculum, lack of trained manpower, lack of national policy, inadequate data and information and so forth. Similarly IGES (2001) had also reported that EE has obtained growing momentum, but unable to make a quantum leap towards preventing, stopping and reversing environmental degradation. Despite sound national policies, EE activities was unsuccessful in many countries of the region due to inadequacies such as a lack of manpower, physical facilities, data, conceptual clarity, curricular development and pedagogy. These problems are prevalent in many countries, but their extent varies from country to country.

Many countries in Asia Pacific region have initiated innovative educational programme; some are successful; some are mediocre and some have just failed. Indeed, they are not making any significant impact on the society because they are small in scale, scattered and occurring in isolation. These efforts alone are not enough to foster

the cause of EE in the region. These countries also share a set of common approaches to deal with the problems of the environment. Some of the common points are their concerns to develop the process of transition to a sustainable future, producing qualified manpower, developing educational materials and so forth. The common points are not promoted at the regional level; they are not brought together under the scheme of a regional collaboration and cooperation. It is, therefore, necessary to develop the mechanism of international cooperation that promotes and fosters the forces, expeditious in the implementation of EE at the grassroots. Though many EE campaigns have had some success, one of the greatest flaws for many of these programs is that they do not keep individuals involved or interested in the issues. Many of these educational programs also lack elements of natural science and social science that should be included to fully understand the environmental issues being addressed. For example, in the case of many 3R campaigns many students may be told that recycling is good for the environment, but not necessarily why this is true. Many of these campaigns are targeted at young children, and it may be argued that scientific concepts may be too complex for them to understand.

Many sources have written about the threats to the Earth and about the behavioral changes that will be necessary to overcome them. Apparently, the 'Environment' as a topic, seems to be part of everybody's life. Nevertheless, we find that many people's behavior still causes damage to animals and nature. We think then that the expression 'respect the environment' is only part of a 'fashion' and that people are looking at it from an aesthetic point of view. It is not penetrating people's minds. The answers to the serious environmental problems we are experiencing are not a part of the social and political debate. Only small action groups try to provide solutions but

they don't have the possibility of being heard by social administrations and organizations.

In 1992, concerned about worsening environmental conditions, delegates to the UNCED in Rio de Janeiro, Brazil, stressed the need for action. However, in such sectors as land, freshwater, forests, biodiversity, and climate change, the 1997 UN assessment found that in every environmental sector, conditions have either failed to improve, or they are worsening. The supporters of EE believe that although benefits of EE has been known for a long time, there has not been enough evidence that EE has been helpful in changing student behavior.

As mentioned earlier Government of Nepal have started the EE curricula at the school level. EE as a subject is vital to school education in Nepal. Topics on EE are included in the national curriculum of grade 1-10.This is the major step taken by the Government of Nepal in the area of EE, implemented through the Department of Education. At this instant, principally every child who goes to school learns environment education. Developing and implementation of such scheme is not enough to acquire knowledge and skills hence to change their behavior at all. As it had been rightly pointed out by Tbilisi conference on EE, the goal of EE is to bring change in human behavior. The curriculum of Nepal principally aims to develop their attitude and behaviors. Nepal has its obligations to implement the international Environmental Laws. It also has to solve the national environmental problems, the main obstacles in this endeavor is the lack of skilled and motivated manpower, lack of public awareness and proper institutions to deal with environmental problems. According to the subject matter, one of the published reports had given that climate change is one such issue, which needs to be properly understood by young children (Dekens, 2007). Inclusion of the causes and effects of climate change in the school curriculum will educate the

students about what they can do to reduce and help to minimize the consequences. However, most of the schools do not have any subject encompassing the whole issue of climate change.

Though the government has good intentions, in reality these aspirations fall short. For instance they are taught the problems of global warming ozone depletion, biodiversity loss and so on, but the problems that are around them in their own surrounding environment are not well explored. Even the teachers lack training to be able to teach the new curricula. In addition to these even the course content does not include the practical aspect of the subject. Therefore, there is a lack of implementation of what the students learn in their classes (Karki, 2001).

According to Pandey et al. (1998) & Pandey et al. (2001), there are numerous problems with curriculum, teacher training and resource materials. Most materials are written in English, have many flaws, and are not relevant to the students. Very often the textbooks are not distributed on time. Over 50% teachers are not trained in how to teach the course. Teachers complain that there is no time to teach extra materials. Resource materials are expensive and not even frequently available. Many facets of the program need to be addressed for it to be effective in the future. Many other reasons and difficulties in the practical scenario lead the country's education system towards imperfection and such aims aren't entirely fulfilled.

EE occurs under many guises across a wide range of audiences. Attempting to evaluate the effectiveness of various EE programs has proved to be a difficult task due to the variety of programs and goals within each program. As long as this lack of continuity exists, stakeholders in EE programs will look to the demonstrated behaviors of the subjects that come out of these programs. Whether the interaction takes place in a county agricultural extension office, university course, state park

interpretive program, or grade school classroom, it is generally held that the ultimate end of EE is REB. This may involve reinforcement of existing behavior, but often involves changing current practices or introducing new ones.

As EE has matured as a field of practice and research, applied theory has moved from the notion that knowledge of environmental crises is sufficient for improved environmental behaviors to the current understanding that there are a variety of factors that contribute to REB. While there is some discussion of how exactly these factors break down, there is agreement that they can be classified as cognitive and/or affective. Because the ultimate goal of EE has been 'participation' or 'action' or 'behavior' (UNESCO, 1993; Nutbeam, 2000; Dietrich, 2007), environmental educators seek ways to promote durable (long-term, self-maintaining) behaviors that also generalize to other behaviors.

An Overview of REB

REB is the ultimate goal of EE, and many models exist that describe what influences REB. Ultimately the goal of education is to shape behavior. Therefore the goal of EE is to shape behavior that affects the environment. The theory is that by meeting the objectives outlined in the Tbilisi Declaration, people will have the tools they need to change their behavior in a way that positively affects the environment. The declaration provides a basic outline for increasing environmental responsibility in people. Since it was written, researchers have studied environmental behavior in depth to better understand what leads to environmentally responsible behavior (Hungerford & Volk, 1990).

Early research about REB was based on the Schwartz's norm-activation theory, which explained altruistic behavior in general. Based on this theory, REB arises from the activation of a personal moral norm. This activation occurs when a person learns

about environmental problems and their consequences and feels an obligation to act (Schwartz, 1977). A second theory that explains REB, intrinsic satisfaction has developed. Intrinsic satisfaction focuses on actions taken for immediate, personal self-interested reasons. The ultimate effect of REB motivated by intrinsic satisfaction may be environmentally or socially beneficial but it happens because of self-interest.

De Young (2000) examined nine studies that outlined the structure of intrinsic satisfaction. Four themes emerged. Links were found between REB and satisfaction from competence or enjoying being able to solve problems. REB was also associated with satisfaction from frugality and participation in one's community. Finally, REB was linked to luxury in that there was no conflict between REB and having a modest level of material well-being.

Another theory that merges the altruistic and self-interest approaches is the Reasonable Person Model (Kaplan, 2000). Kaplan argued the altruistic approach implies sacrifice, and the notion of having to sacrifice drives people away from REB. But altruistic activities can make people feel good about themselves and can be a motivator. This model is based on the fact that humans have evolved to be curious, problem-solving beings that avoid difficult or ineffective environments. Based on this he argues that people are motivated to know and understand what's going on; they hate being confused; and are motivated to learn discover and explore; and want to participate and play a role; they hate feeling helpless. People that exhibit ERB are knowledgeable about environmental problems, are curious and feel competent. They also exhibit ERB when it does not seriously disadvantage them.

Gender has also been linked to REB (Zelezny, 1999). They found that women showed more environmentally responsible behavior than men. It is not fully understood why this is, but explained that women are shaped by gender expectations.

Women are socialized to be more compassionate, nurturing, helpful and cooperative. Women exhibit more altruism. These findings were similar to those of the Kentucky EE Council. The council found that Kentucky women were more likely to be concerned about the environment than men

A subsequent investigation (Disinger & Howe, 1988; Newhouse, 1990; Hungerford & Volk, 1990; Ramsey, 1993) had concluded that there are three categories of variables that contribute to REB and hypothesized that these variables act in a complex and synergistic linear fashion;

1. Entry-level variables (environmental sensitivity, knowledge of ecology, androgyny and attitudes) Entry level variables are prerequisite variables or at least variables that will strengthen the decision-making. The strongest variable in this category is environmental sensitivity that is defined as 'an empathetic perspective toward the environment.' Androgyny, knowledge of ecology and attitude toward pollution/technology/economics are not as strong as predictors of environmental sensitivity.
2. Ownership variables (in-depth knowledge, personal investment, and personal commitment) Ownership variables are environmental issues that are important at a personal level. The variables appear to be critical to REB. The two major variables in this category are in-depth knowledge of the issues and personal investment.
3. Empowerment variables (knowledge and use of skill, locus of control and intention to act) Empowerment variables strengthen the sense that we can change and are able to solve environmental problems to make a better world.

Knowledge and skill in using environmental action strategies is the best predictor of pro-environmental behavior because it brings self-confidence to help resolve environmental problems.

Locus of control refers to believing in being reinforced for a certain behavior. A person with internal locus control believes that he/she will be reinforced for doing something. Locus of control (internal and external, group and individual), knowledge of environmental issues, knowledge of and skills in environmental action strategies and knowledge of ecological concepts, personal responsibility, beliefs and values related to environmental issues, environmental sensitivity, and attitude have all been identified as factors related to REB. Intention to act is related to empowerment variables. If a person's intent is to take action, the chances of that action occurring are increased.

Some researches did not find a correlation between knowledge and attitudes or knowledge and behavior. They did however find a correlation between attitudes and behavior. The Kentucky EE Council found that people who were more educated were more knowledgeable about the environment, but they did not report as many REBs.

Though REB is the goal of EE, it is not something that everyone feels is important. Researchers have examined the different factors that affect individuals' attitude and willingness to protect the environment. A paper published by Barr (2003) used evidence from existing empirical research and a large questionnaire survey undertaken by the author to argue that environmental action is open to a range of influences, focusing especially on environmental values, situational characteristics and psychological variables. This model takes into account altruism, concern for the environment, influence of others (social pressures), self-interest motivation, and situational factors such as age, gender, income and education. Accordingly, the paper

asserted that strategies for promoting environmentally responsible behaviors (such as energy saving, water conservation and waste recycling) should take account of these factors.

There were also other studies done which looked at manipulation of the perceived range of impact of risk-relevant behaviors. Subjects judged the likelihood that they and their average peer would be affected by environmental hazards, phrased in either general terms (e.g. air pollution) or specific terms (e.g. respiratory problems due to air pollution). They were concerned about the specific outcomes not explicitly related to the environment (e.g. respiratory problems) and identified behaviors which influence the likelihood of being affected by each hazard. They are concerned about general environmental hazards nominated behaviors likely to benefit many people (e.g. reduced use of ozone-damaging chemicals) (Hatfield & Soames, 2002). Few other researches also found a positive correlation between threat and concern for the environment, and in that the threat manipulation was found to moderate its relationship with concern for the environment and concern for population growth.

In Germany, Gresele et al. (2000) investigated understanding of the motivation for environmentally sound behavior and its educational implications. The theoretical framework was based on the 'integrated action model'. The results indicated that the motivation phase (perceived threat, copying style and responsibility); the action choice phase (instrumentality, outcome expectancy and self efficacy) and social needs play an important role for the action generating process. Thus an educational program should consider these affects and cognitions.

Oskamp's research (2002) in America discussed the major obstacles to the goal of REB. He found that the obstacles are inertia, based on habit, selfishness, helplessness, fear and belief in technological fixes as panaceas.

Most research has focused upon the several factors, such as locus of control, knowledge of ecological concepts and issues, affective factors, and environmental action strategies although it is commonly held that especially participation are among the most important factors influencing behavior.

Sense of Place in Relation with REB

Many environmental and conservation professionals have linked the possession of a strong sense of place with the undertaking of environmentally responsible behaviors. As Thayer (2003) as cited in Ardoin (2004) had given the theory that follows the reasoning that, 'People who know a place may come to care about it more deeply. People who care about a place are more likely to take better care of it'. Therefore, sense of place is frequently cited as being a core concept in achieving EE's end result of an informed citizenry that takes action on behalf of the environment. Overall, the sense-of-place concept has inspired a wealth of disciplinary explorations through which researchers have attempted to understand how people develop, and act upon, connections with places. However, few have considered place as a multifaceted concept. Therefore, EE, an interdisciplinary field by definition has a great opportunity to celebrate connections to places from a range of perspectives. To understand how a holistic connection to place can influence environmental behaviors, it is necessary to recognize place as consisting of numerous dimensions that act in consort with one another which can be discussed under four four dimensions of sense of place.

Studying sense of place requires the exploration of four critical dimensions: (1) biophysical context, or the physical setting, which refers to the influence of the natural and built environments, as well as to knowledge, values, and attitudes toward and about the surrounding environment; (2) psychological elements, namely place

attachment, which refers to an individual's psychological connection to and physical dependence on place and is often separated into place identity and dependence; (3) socio-cultural elements, which refer to the influence of the social community as well as the cultural context; and (4) political economic elements, which reflect localized processes that arise in response to influences of the particular place and socio-cultural milieu.

Outdoor education and REB. Outdoor educators have directed more attention to environmental action activities that develop REB. For example, Blanchard and Ford (1993) stated that outdoor activities can create an initial sensitivity toward the environment, the first and essential step on the path toward increased understanding of environmental processes, increased understanding of our place in, and dependence upon, the ecosystem, and to take action on behalf of the environment. Matthews and Riley (1995) supported Blanchard and Ford's assertion that environmental responsibility is best developed outdoors. He found that the following did not work in bringing about ethical, behavioral change in students: 'lectures, excessive moralizing, externally derived codes of ethics/conduct, adults setting the ethics agenda, and teachers/leaders as authoritarian figures'. Involvement in outdoor activities stimulates interest in the outdoors, which in turn motivates students to learn about the natural environment.

In 1990, Hungerford and Yolk presented a benchmark paper on changing learner behavior through EE. It affirmed the convictions that vital environmental learning takes place outside the classroom in children's homes and neighborhoods. The following variables have shown the strongest relationship to environmentally responsible behavior: environmental sensitivity or empathy, in-depth knowledge of specific issues, personal investment in change, perceived skill in using action

strategies. By itself, studies repeatedly show knowledge about ecology and environmental problems, the main content of school curricula and mass media messages is not enough to produce responsible behavior. They noted the paradox that most environmental instruction focuses on imparting information, a strategy that tends to be ineffective by itself in changing behavior. In contrast, committed environmental action depends on a combination of factors that are usually acquired outside of school rather than in the classroom. The primary sources of responsible action, it appears, originate in the home and the community.

Environmental sensitivity, defined as an empathetic connection with the environment, strongly correlates with behavior; and several studies suggest that children acquire sensitivity through positive outdoor experiences over extended periods of time in wild or semi-wild places, either during solitary play or activities with friends or family. Sensitivity contributes to what Hungerford and Volk term ‘ownership variables’: personal investment in an environmental issue, and acquiring in-depth knowledge about it. Hungerford and Volk (1990) added that effective programs allow students to gather in-depth knowledge; require students to use critical thinking skills; and involve application of what students have learned. Orr (1992) claimed that in order to change or nurture environmental values, we must have people motivated by a sense that their well-being is linked to the environment.

To take action, people also need a sense of empowerment. Studies showed that the best predictor of action is perceived skill in using action strategies. Perceived skill, in turn, is gained through opportunities to practice skills. Action skills may be taught informally by parents and neighbors, through non-formal community organizations or environmental centers, or through formal school channels that give students real

responsibility in their school or community. Recently, Hart (1992) developed a model which distinguishes the genuine participation of children from tokenism.

Hungerford and Yolk also noted that even when schools develop action skills, they usually focus on a single issue. The scope of global problems, however, requires that people learn to assume environmental responsibility in every aspect of life. Disinger and Howe (1988) also reported that the most effective instructional strategies for developing environmental responsibility were case studies, field trips, community inventory projects, and community action projects. Matthews and Riley (1995) found that the programs most likely to change behavior involve concrete, environmentally positive, action-oriented experiences; a relevant context; and long-term involvement, support, follow-up, and reinforcement by role models. Other effective methods include small group discussions, dilemma discussions, role playing, the use of role models and mentoring, participation in community clubs and peer teaching (Matthews & Riley, 1995).

In Just beyond the Classroom, Knapp (1996) proposed that effective outdoor education programs focus on the community, involve service learning, be interdisciplinary, use problem-based learning methods, allow for cooperation, and include time for reflection. Attrian (1996) as cited in Ardoin (2004) supported those recommendations when he stated that developing values is a lifelong process. As educators we can provide our students with the experiences and tools to help them become more knowledgeable about the environment and their place in it. Participation in outdoor pursuits classes and programs can give all of us the opportunity for challenge, adventure and excitement. Perhaps most of all, the outdoor experience offers us a chance to explore and shape our values, attitudes, and behaviors towards the environment and ourselves.

Caken and Tellness (1996) as cited in Ardoin (2004) pointed out that outdoor education, outdoor recreation, EE, and experiential education share common ground--the values of respect, social responsibility, self-actualization, justice, and freedom for all living beings and the earth. Perhaps we have been taking too simplistic an approach to the development of environmental responsibility by looking only for short-term environmental behavioral changes in our students. It is time to take a step beyond effecting and measuring short-term behavioral changes. In addition, conducting more longitudinal outcomes-based research would provide much needed documentation of the success of outdoor education in developing environmental responsibility.

Zelezny's (1999) meta-analysis is important in its assertion that educational interventions can effectively improve environmental behavior. Previous to the publication of her paper, there was little comprehensive research on the effectiveness of recent EE programs. Active participant involvement was determined to be positively related to improving environmental behaviors and classroom interventions were shown to be more effective than interventions in non-traditional settings in improving environmental behavior. However, several researchers (Ramsey & Hungerford, 1989; Newhouse, 1990; Ramsey, 1993) have postulated that non-traditional interventions are more effective in establishing the affective factors influencing REB, specifically, environmental sensitivity and attitude.

At present context, students are apt to overlook the inescapable fact that humans are connected with the natural world. Technology itself often enhances our vision of the natural world. The study of environmental history reminds us that we are forever bound to the earth. The students need the art of problem solving which includes that the curriculum should prepare students for realistic problem solving in authentic contexts. Problem solving is intrinsic to the role of education in technology

and science. Jenkins (1997) noted that in our increasingly global, diverse, and technology driven world, problem solving is critical to the accommodation of knowledge and understanding within the field of technology education. Problem solving is the heart of human technological behavior and the overriding concept of technology studies. Secondly the curriculum should include a human element in exploration of technology problems and solutions. Technology students need to appraise realistically the role of human activity in contributing to the current environmental situation and the role of technology in providing solutions. Conventional approaches to higher education often emphasize linear, compartmentalized thinking and segregate humanistic viewpoints from scientific perspectives. But complex environmental issues require the intermingling of human society, natural ecosystems, and content knowledge. Barat and Elliot (1993), for example, used an ecologically informed and holistic approach to the teaching of chemical engineering. Their work argues for an appreciation of the human enterprise, environmental awareness, and the fundamentals of chemical engineering. As they stated, 'This individual (the chemical engineer) is neither a technical specialist working within a cultural and technical vacuum nor a social revolutionary who lacks technical competence'. One case study used in the course asks students to analyze one of the most famous examples of controversy over the use of natural resources. The ensuing controversy revealed the human element in environmental problem solving. As students reviewed the social, cultural, and environmental influences surrounding their area, they come to understand the complex relationship with their own natural world.

In the same research they also realized that the curriculum should be cross disciplinary. When they analyzed realistic problems faced by their technological

society, environmental pollution, for example, then they realized that environmental problems themselves tend to be multifaceted. They often transcend the scope of any one discipline. Analyzing the environmental impact of a product's package design, they found that it also requires collaboration of several disciplines: social sciences to provide an economic assessment of the package's life cycle effect on the environment, humanities to evaluate the aesthetics and ethics of design change, and natural sciences to provide a toxicological analysis of chemicals in the packaging manufacture and disposal. Multidisciplinary collaboration was therefore became an essential element of any kind of environmental research, planning, and management. Interdisciplinary teaching sharpens students' awareness of critical connections and contradictions. Like the divisiveness that comes from framing arguments according to value dualism, confining the perspective of environmental problem solving to a singular discipline works against any effective solution. The presentation of the core ideas was related in explicit ways to other fields represented in the course. Environmental history was explained through its connection to economics, for example. In the study of environmental history, the field of political economy has proven to be a helpful complement to analysis. By concentrating on the political economy of a nation, the environmental historian can more clearly understand the agenda of environmental policy. The case study and task are thus broadly multidisciplinary: students are asked to solve problems by looking both within and beyond a single field of knowledge and by synthesizing the knowledge base of several disciplines. They also found that the curriculum should be communication intensive. All environmental problem solving involves communication. A conversation among farmers about crop rotation, a debate among disputing parties to negotiate an acceptable resolution to highway construction, a feasibility report on land use, or competing proposals at a global climate conference

to reduce emission of greenhouse gases are all examples of environmental communication. Students need opportunities to build communication skills including writing, public speaking, collaborative work, and listening. To create effective environmental communication strategies, stakeholder should assess the audience's attitude, knowledge, and desired behavior (Coppola, 1997). Students in technical disciplines need particular guidance in adapting messages to a variety of intended readers or listeners.

Compelling and competent writing is also required to complete the environment related assignments at the end of each disciplinary topic. Case study is also required where the students can role play various members of a pollution prevention team in a wallpaper manufacturing company who are charged with discovering waste minimization opportunities. Such case study can present several pollution prevention options, all with competing and sometimes conflicting demands on resources. Different types of assignment can also be given which asks students to analyze options, justify their choices, and present their findings both in an oral presentation to the firm's administrators and in a written feasibility assessment. The curriculum should provide a rational approach to environmental problem solving. Controversy over environmental issues is the result of differing value systems among stakeholders. Educators need to make clear to students that the affective domain-the attitude and belief systems of people-is important in determining how people respond to environmental issues. Whether students are role playing a corporate employee who is championing a pollution prevention program or a government worker who is helping businesses changes their pollution practices, awareness of the principles of behavior change is essential to effect environmental change (Day & Smith, 2007).

Students need to learn to allow for the fact that differing personal values exist and to approach environmental problems without a crisis mentality.

The course aims to introduce rational methods of thinking about the earth's environment. Rationalism suggests that individuals have the ability to define problems comprehensively and formulate a coherent search for solutions. Rational action is the consequence of critical thinking. Therefore, the course attempts to develop the student's ability to think critically by fostering the following: Independent thought-the ability to move beyond simply memorizing formulae to analyzing and constructing meaning from complex data and theory. Intellectual breadth-the ability to move beyond disciplinary specialization to look at issues from different perspectives. Cultural breadth-the ability to understand differences in perspectives arising from economic status, race, gender, and class. Ethical awareness-the ability to understand the impact of our technical decisions on others, the environment, and ourselves.

The course adopts a consistent format that presents core critical thinking strategies of each discipline as they are used in environmental problem solving. The application and task are also presented in situated learning contexts as case studies to promote fuller analyses. Sixth is the curriculum should move students from awareness to action. According to Roth (1992) as cited in Wilke (1997), ‘People tend to progress along the continuum of proficiency in environmental literacy in stages that include: awareness; concern; understand; and action’. Students should be able to demonstrate in some observable way what they have learned and their knowledge of key concepts and skills acquired.

In a discussion of groundwater management in the geography and environment modules, students analyzed resource users in a particular New Jersey area that was reporting elevated incidents of childhood cancer. The students' interest

in this topic took an unusual turn when they decided to take an active involvement. Impressed by the community's ability to motivate interest from local, state, and national entities and to generate publicity for the community's fight against cancer, the students developed and published a web site so that other communities facing similar environmental pressures might benefit from the lessons learned. This exercise encouraged students to reflect on their own relationship with the environment and to imagine how this relationship might be changed. More work was found to be in need to be done in order to collect empirical and qualitative data to determine the effectiveness of our approach. However, assessment results showed us every evidence that students perform well and express their critical thinking skills in writing, and that they like the course. Evaluation of HSS 202 (Society, Technology, and Environment) covers both the student's assessment of the course via traditional course evaluations and the student's performance in the course via holistic scoring of portfolios.

Many colleges have introduced environment-focused courses and research programs throughout the technical disciplines (Aysegul, Mehmet, & Ozsoy, 2007). They demonstrated that science, engineering, and technology do not possess the only framework of knowledge that renders an understanding of our world. The humanities and social sciences also provide excellent models for environmental problem solving. Moreover, the humanities and social sciences provide a rich, enduring framework for technical knowledge and practical application that can lead to a fuller understanding of our relationship with our world. Our students in a technological university often do believe that technology is both the driver in environmental problem solving and the solution to our planet's ability to absorb the waste we produce. We cannot say that we are creating an environmentally literate society. But as our students gain an ecological perspective, they become more creative and responsible citizens. Thus they fulfill an

implicit goal of American higher education, which is to prepare students to participate in a modern world that is increasingly challenged by complex environmental issues. Certainly, a critical role for Americans is to protect both the quality of life and the quality of the environment.

Bright and Tarant (2002) investigated how individuals integrated information into their attitudes regarding a complex natural resource issue. More specifically, they wondered if people formulated selective perceptions and interpretations that reinforced their own points of view or if they acknowledged the complexity of the issues. They devised a study exploring college students' complexity of thinking about the endangered species act and the connection between complex thinking and several attitudinal characteristics. In addition, they examined the effects of environment-based coursework on university student's perceptions of that act. The study concluded that there were some significant relationships between integrative complexity towards the act and attitude characteristics. Iteratively complex scores were higher for those that held moderate attitudes towards the act than for those who had extreme attitudes, with ambivalent-attitude individuals showing the most integratively complex thinking towards the act. The weak relationship between attitude direction and integrative complexity support the ideas that moderate attitudes are characterized by more complex belief systems than extreme attitudes and that public perception about the act is more complex that simply gathering facts to determine who is right and who is wrong. The authors also determined that environment-based coursework increased students' integrative complexity of thinking about the act. The coursework influenced the extremity of the attitudes, but not the direction. In addition to increased integrative complexity test scores, the experimental students showed greater ambivalence of attitude towards the act, although their overall attitude towards it became more

moderately negative. In this case, more knowledge did not necessarily lead to improved behaviors.

The relationship between knowledge and attitude was researched by Armstrong and Impara (1991). A four-subject curriculum called Nature Scope was given to various fifth and seventh grade teachers for use in their classrooms. A pretest-posttest survey was used to measure the students' knowledge and attitude was measured on Likert-type scales. Experimental groups for a given subject section served as control groups for another in measuring knowledge. Control groups were used when measuring attitude. No control was placed upon which activities the teachers used, the mode of implementation, or the modifications to the curriculum. The authors concluded that only one of the four lessons had significant positive impact in increasing knowledge, but posttests showed the treatment group consistently outscored the control group in knowledge.

A study was done based upon an EE methodology centered upon issue investigation and action training by Ramsey and Hungerford (1989) involving seventh graders. The study used a modified pretest-posttest design, with four groups of seventh graders receiving their instruction for eighteen weeks and four groups receiving control science instruction for eighteen weeks. Data were collected via three instruments using Likert scale-type and two instruments collecting phenomenological data. The authors found that their instruction directed at environmental issue analysis, investigation, and resolution promoted REB among seventh-grade students. The findings further indicated that it also promoted the specific knowledge, skills, and beliefs critical to REB. Both individual and group locus of control as well as enhanced the students' perceptions of their knowledge and skills in the use of environmental action strategies were also significantly increased. However,

environmental sensitivity was not increased as a result of the training. These findings established the connection between training instruction and the cognitive factors influencing REB.

In a later study using the same methodology, Ramsey (1993) used a very similar experiment design with eighth-graders. His findings were also similar, that the training promoted the specific knowledge, skills, and beliefs critical to REB. One difference was the indication that subjects' group locus of control was significantly promoted, although earlier studies had shown the group locus of control to be greater than individual locus of control. Again, environmental sensitivity was not found to be significantly altered as a result of instruction.

The research was done by (Timo, 2001) to investigate everyday behavioral habits of people, related to the environment. Using the surveys he tried to find out how environmentally friendly behavior actually occurs on the basis of International Code of Marketing and Social Research Practice. With the increase in the amount of national and regional environmental awareness programs and the implementation of new environmental policy (especially new waste management policy that would promote sorting the garbage and recycling the waste paper), it was possible to vanquish these drawbacks and turn the whole progress positive. When comparing behavioral habits in Estonia and in the world, he noticed that whereas Estonians concentrate more on saving electricity, buying domestic goods, saving water while brushing their teeth and when shopping bringing their own shopping bag with them, then abroad there are dominating slightly different trends –greater attention was paid to sorting one's garbage and using public transport. He also perceived that by the use of washing technology foreigners try to save more water, both when washing dishes and themselves as well.

Pedagogical Approaches to EE

Introducing EE in school curricula has its own history. For example, UNESCO (1985) identified long before the term EE came into common usage in the seventies that the roots of EE could be traced back to school curricula where certain elements of the EE concept existed in school subjects under various names: Nature study, Rural science, Geography, Biology, etc. The teaching approaches of the curricula were concerned only with two dimensions related to the environment viz. learning about and from the environment (Zaidi, 2004). A vital third dimension adopting education for the environment was not significantly developed in relation with teaching methods real life based activities such as to assist the preservation or improvement of the environment for the enhancement of the quality in human life (Lucas, 1972). This dimension was gradually incorporated into the school curricula through some of the traditional subjects such as science and geography. Selection of only one teaching method for classroom practice may not play crucial role to achieve the goal of the EE. Thus adopting different suitable teaching approaches according to the nature of the subject matter leads to meet the EE objectives. In other words selection of interdisciplinary or holistic teaching approaches can be taken effective ways to conduct classroom practices meaningfully. Holistic approaches encompass various ecological, social, cultural and economic aspects of the environment (UNESCO, 1993). If subjects and topics are related to the pupils' culture and values then the teaching learning activities will be more interesting and meaningful. Pupils will be more curious and motivated to learn about the issues that are faced in their everyday life.

EE has been primarily targeted on young people and has used primarily the distribution channel of schools and the curricula of the formal education sector. When

EE originated some 30 years ago it was mostly focused on disseminating factual knowledge. The cognitive dimension was dominant, and the aim was to teach pupils a certain degree of knowledge. In recent years, there has been a shift to learning by doing. The importance of the action dimension of EE is underlined. Target groups need to practice new forms of behavior, to find practical alternatives in their own contexts. Learning in the classical sense, the transfer of knowledge, is no longer sufficient. It concerns social orientation, learning in social contexts, development of opinions, exploration of possibilities and working with uncertainties. Thus EE becomes strongly aimed at change.

Hungerford and his associates had analyzed research on variables related to the development and demonstration of REB and have designed and tested a set of instructional materials based on this research. The materials stress a hierarchical-approach involving four levels of activities (Hungerford, 1987).

Ecological Concepts: This goal level attempts to provide the learner with the ecological knowledge that will permit him/her to make ecologically sound decisions with respect to environmental issues. This knowledge would include (but not be limited to) such concepts as individuals and populations, interaction, limiting factors, biogeochemical cycling, abiotic influences, homeostasis, succession, etc.

Conceptual Awareness: This goal level attempts to develop a conceptual awareness (i.e., knowledge) of how individual and collective behaviors influence the relationship between quality of life and the quality of the environment, as well as how human behaviors result in issues which must be resolved through investigation, evaluation, decision-making, and citizenship action.

Issue Investigation and Evaluation: These goal level attempts to develop the knowledge and skills needed to permit learners to investigate environmental issues

and evaluate alternative solutions for remediating these issues. It also provides opportunities for students to actually investigate and evaluate issues.

Environmental Action Skills: Training and Application: This goal level attempts to develop those skills needed for learners to take positive environmental action for the purpose of resolving or helping resolve environmentally-related issues. It also involves the development of action plans by the students and provides them with the opportunity to implement those plans if they desire.

Research data indicates that behavior change usually will not occur if students are exposed only to Goals 1 and 2. The data also indicates that behavior will change if students are thoroughly exposed to Goals 3 and 4 in addition to 1 and 2. The quality of the student's environmental actions also tends to improve when they have used issue analysis and investigation.

Some states, such as Wisconsin developed state curriculum guides that recognize the need to provide for these variables in school programs, beginning early in the school program and continuing the emphasis throughout the school program. The Wisconsin program supports a hierarchical approach and that (1) concepts, attitudes and skills develop over time, (2) effective programs involve both cognitive and affective emphases, (3) effective programs require issue analysis, and (4) experiences should be provided that help the individual develop the feeling that their efforts and actions can make a difference with real issues and problems.

Teaching about REB is important at all educational levels. Just as some teaching techniques are more effective with some people than with others, so too it is likely that some teaching techniques will be more appropriate for use with some environmental problems than with others (e.g. global warming vs. toxic pollution of local wells). Teaching about REB has to address the three essential factors in behavior

change described in the IMB theory-information, motivation, and behavioral skills. To those ends, Oskamp (2002) had suggested eight approaches that can be effective in many teaching situations. Instructors can use them alone or combine them with other fruitful procedures. The first two approaches are focused on information and behavioral skills, while the last six are more focused on increasing motivation for change and overcoming the obstacles to change discussed above.

1. Use popular literature sources in addition to typical textbook material-Popular literature sources not only provide important background information, but also address the crucial behavioral skills component.
2. Provide online resources for students-Our current computer-savvy students can take advantage of many online resources that provide a wealth of information and action advice on all kinds of environmental issues.
3. Present vivid scenario of environmental problems for class discussion of remedial actions.
4. Present descriptions of specific environmental problems and have the class discuss their implications fro society.
5. Discuss the importance of clear behavioral norms to guide individual and group behavior.
6. Harness and redirect students' beliefs in technological progress.
7. Encourage group activism to combat environmental problems.
8. Finally, and most important, present environmental problems as a war against extinction.

Within the school system the teacher plays a very important role. They create suitable conditions, guide or inspire student's thinking and action in the desired direction. A variety of teaching methods can be used for effectively integrating

environmental dimensions into the existing curricular system with minimal demands. For example games, classroom displays, performing arts, demonstrations, exhibitions, creative expression, arts and craft, creative writing and using the outdoors. No matter what the situation is, the learning experiences can be enhanced by teachers. The challenge is to use imagination and innovation in selecting from the many activities and approaches that can motivate students and take them from awareness to action. Emphasis should be given to practical sessions to the students so that they can learn the environment by experience and further communicate their knowledge and concept of environment, its importance, and its conservation in the society

It requires better support or encouragement from the government side itself in terms of financial and moral support. The educators claim that there is a greater need for more EE materials, more training are needed from thee experts. EE should be given greater priority in the schools as well as in the non-formal institutions.

The children of Nepal have much enthusiasm and intelligence and curiosity. They have the energy necessary to tackle the environmental problems; they just need proper tools for constructive problem solving. According to Karki (2001), Nepalese EE is supposed to make individual aware of their environment and its problems and help them to understand the effect that human choices have on the environment. According to the findings, Nepalese students are aware of the environment and its problems but they do not have an understanding of how their choices affect it. They experienced a lack of control over their own futures. Education should be focused on personal choices and the effects they have. These relationships are important for students to understand. Understanding student's initial conceptions and taking them into account, a teacher can design more effective teaching strategies in addition to curricular component. Teachers can include more local examples such as if the book

discusses about soil erosion, a teacher could point out local examples of landslides. Even better, the students could be taken on a field trip to see local examples of environmental issues. The students would not only understand the environmental topics as existent issues, they would also see how their local community is being affected.

Barriers such as social influences inconvenience, effort, time, cost, accessibility of resources, or lack of facilities impede environmental behaviors. In general, when barriers are present, the likelihood of environmental behavior is reduced. There are several factors that govern REB are inertia based on habit, selfishness, helplessness, fear, negligence.

Developing environmentally positive habits in the citizen is necessary for the sustainability of the environment. Environmental issues are frequently complex and contested. Research, invention, innovation and adaptation are all required. None are possible without a clear understanding of the ecological and policy issues and linkages involved. Without a firm, educated basis of knowledge and understanding, progress on environmental issues becomes haphazard, uncertain and unlikely. An educated understanding of environmental issues also reduces the sense of helplessness which might emerge in the face of environmental challenges.

Promoting REB requires changing human attitudes and linking them to participation. Participatory action should be the desired outcome, and awareness is a necessary step in the process (Stepath, 2000). It is generally held that the ultimate end of EE is REB. This may involve reinforcement of existing behavior, but often involves changing current practices or introducing new ones (Chiou, 1998; Mc Gitney, 2005 as cited in Croyle, 2005; Stepath, 2000).

Behavior Change Theory

There are several major theories on behavioral change. Environmental educators have recognized that the determinants of behavior are multiple. The Theory of Planned Behavior (Ajzen, 1985 as cited in Brod et al., 1995; Hale, 2003) theorized that any behavior must first be specifically and fully identified. That behavior can then be predicted from a corresponding intention. Three conceptually independent determinants are posited for any intention:1) attitude toward the behavior 2) subjective norm and 3) perceived behavioral control.

The Process Model (Fazio, 1986) explained the process through which behavior is influenced by attitudes. The model contends that the ability to spontaneously bring one's attitude from memory is the major determinant of the attitude-behavior relation. The accessibility of an attitude is viewed as a function of the strength of object-evaluation associations, which can be enhanced through repeated expression and direct expression.

The Social-Cognitive Theory (Bandura, 1986) argued that attitudes are insufficient to explain behavioral response, as other intervening or moderating variables may be necessary to translate attitudes and interventions into behavior. It also suggests that new actions or skills, whether directly experienced or learned by modeling, may be necessary to produce behavioral change. And finally, enhancing personal assessment of one's capabilities, as well as one's judgments of self-efficacy and competence, is thought to increase the persistence of a behavior.

Research using the Theory of Reasoned Action (TRA) had explained and predicted a variety of human behaviors since 1967. Based on the premise that humans are rational and that the behaviors being explored are under volitional control, the theory provides a construct that links individual beliefs, attitudes, intentions, and

behavior (Fishbein, Hitchcock, & Middlestadt, 1994). According to the various theories, human action is guided by three kinds of considerations. Behavioral beliefs: beliefs about the likely consequences of the behavior (How will I feel or what will happen to me if I act in a certain way?). Normative beliefs: beliefs about the normative expectations of others (How will people I know expect me to behave and what will they think of me?). Control beliefs: beliefs about the presence of factors that may facilitate or impede performance of the behavior (What events or results or people could hinder my acting in a certain way?). These three considerations are crucial when changing people's behavior. In their respective aggregates, behavioral beliefs produce a favorable or unfavorable attitude toward the behavior, normative beliefs result in perceived social pressure or subjective norm, and control beliefs give rise to perceived behavioral control. In combination, attitude toward the behavior, subjective norm, and perception of behavioral control lead to the formation of a behavioral intention. As a general rule, the more favorable the attitude and subjective norm and the greater the perceived control, the stronger should be the person's intention to perform the behavior in question.

In an effort to change people's behavioral pattern, a very useful theory is Fisher and Fisher's (1992) IMB 3 variable theory of casual factors. I stand for relevant information (knowledge) which is usually necessary in order for people to know about a problem and about need for action to solve it. A second crucial factor is M, motivation to reach the goal that requires changed behavior. The third crucial factor is B, behavioral skills that may be necessary to put information and motivation into effect.

Functional Theory

John F. Kennedy once said, ‘Our progress as a nation can be no swifter than our progress in education’ (Todd, 2008). Indeed, education is the cornerstone of any modern society. It is the vehicle we use to pass along our knowledge and culture to future generations. Functionalism is a social paradigm that views society as a system of interdependent parts, or subsystems. For society to work, all parts of the whole must have a general consensus. For example, they must have shared values to provide societal expectations of individuals. Another aspect of a functional society is the existence of common symbols. These symbols give the individuals and collectives in the society common ground to base communication. When a general consensus does exist within a society, that society can be said to be in a state of equilibrium. The aspiration of equilibrium is the precursor for the emergence of functionalism. Functionalism was sociology's attempt to reestablish social order and stability (Hewett, 2007). The French sociologist Durkheim was credited with being the first to link functionalism with sociology. His work was influenced by the concept of functionalism within other sciences such as anthropology and biology. Durkheim was the first sociologist to apply sociological theory to education. Although Durkeim recognized that education has taken different forms at different times and places, he believed that education, in virtually all societies, was of critical importance in creating the moral unity necessary for social cohesion and harmony. Durkeim’s emphasis on values and cohesions set the tone for how present day functionalists approach the study of education. Functionalists tend to assume that consensus is the normal state in society and that conflict represents a breakdown of shared values. In a highly integrated, well-functioning society, schools socialize students into the appropriate values and sort and select students according to their abilities. Education reform, then

from a functional point of view, is supposed to create structures, programs and curricula that are technically advanced, rational, and encourage social unity. Functionalist identifies four particular purposes of schooling; intellectual, political, social and economic. The intellectual purposes of schooling include teaching basic cognitive skills such as reading, writing, and mathematics; transmitting specific knowledge, for example, literature, history and science.

For the functionalist, education is an institution that functions to fulfill the needs of society. Most people might agree that education exists to impart knowledge to the students that they will need to function in everyday life. Functionalism acknowledges this aspect of education, but it also recognizes another purpose of education. Of equal importance to passing on knowledge is the socialization of the individual. Charon (2007) told us that socialization is the method that our social institutions, 'teach people the ways of society and, in so doing, form their basic qualities.' He goes on to say that as people learn through socialization, 'they internalize those ways.' Durkheim argued that education has the responsibility to define and clarify social and moral norms. It performed this function in three main areas: Social solidarity, social rules, and division of labor. The social solidarity that Durkheim speaks of is dependent on the similarities between individuals in a society. These shared values and morals are the basis for our social rules. Our schools are responsible for teaching us social rules. During our years at school, we learn cooperation, self-discipline, timeliness, and etiquette. These traits are significantly important in our society as a whole, so they are reflected in our education system where they can be internalized throughout the learning process (Hewett, 2007 as cited in Charon, 2007).

Social Learning Theory

Social learning theory is a theory to explain how people learn behavior. People learn through observing others' behavior. If people observe positive, desired outcomes in the observed behavior, they are more likely to model, imitate, and adopt the behavior themselves. Rotter moved away from theories based on psychoanalysis and behaviorism, and developed a social learning theory. In Social Learning and Clinical Psychology (1954), Rotter suggested that the effect of behavior has an impact on the motivation of people to engage in that behavior. People wish to avoid negative consequences, while desiring positive results or effects. If one expects a positive outcome from a behavior, or thinks there is a high probability of a positive outcome, then they will be more likely to engage in that behavior. The behavior is reinforced, with positive outcomes, leading a person to repeat the behavior. This social learning theory suggests that behavior is influenced by these environmental factors or stimuli, and not psychological factors alone.

Bandura (1977) expanded on the Rotter's idea, and this theory incorporated aspects of behavioral and cognitive learning. Behavioral learning assumes that people's environment (surroundings) cause people to behave in certain ways. Cognitive learning presumes that psychological factors are important for influencing how one behaves. Social learning suggests a combination of environmental (social) and psychological factors influence behavior. Social learning theory outlines four requirements for people to learn and model behavior include attention: retention (remembering what one observed), reproduction (ability to reproduce the behavior), and motivation (good reason) to want to adopt the behavior.

Vygotsky’s theory is one of the foundations of constructivism. Vygotsky focused on the connections between people and the sociocultural context in which

they act and interact in shared experiences. According to Vygotsky, humans use tools that develop from a culture, such as speech and writing, to mediate their social environments. Initially children develop these tools to serve solely as social functions, ways to communicate needs. Vygotsky believed that the internalization of these tools led to higher thinking skills.

Transformational Learning Theory

Adults are the products of their individual histories and experiences, which influence their attitudes, thinking processes, and conceptualizations of their worlds. Learning comes from the examinations and new idea formulation. The application of critical thinking skills uses this methodology. Many universities are changing the way learning takes place; rather than lecture they are using methods of discovery which yield transformational learning. Teachers bring their own experiences and learning to the classroom. Not every instructor is able to separate their personal frames of reference from their teaching. By its nature, transformational learning requires being more open to the perspectives of others. However, it is much easier to teach from a personal viewpoint, skipping the critical learning process in which the student questions assumptions. Transformational learning requires that the students have a vested interest in their own learning process, rather than being ‘spoon fed’ a bunch of information to memorize or accept. The role of the learner cannot be neglected. The student must be a willing participant, ready to engage in the learning process. The teacher can create the atmosphere in the classroom, but the student must be receptive. Transformational learning causes a change in thinking after digesting information. The student must make the connections within himself to create this new awareness. Knowledge then becomes a part of the student as he begins to make new associations and own it for self.

Reinforcement Theory

Skinner's idea is that reinforcement controls behavior. Many traditional discipline programs rely on practices where one person, usually a teacher or administrator, tries to control the behavior of another, usually a child. The kind of direct relationship between the magnitude or strength of a physical force and the magnitude of its effects on inanimate things is an example of the physical laws of cause-and- effect (C--E). Radical behaviorism, developed by B. F. Skinner, is the school of psychology that says one person can use ‘reinforcement’ (sometimes incorrectly called ‘reward’) to control the behavior of another. In schools, behaviorism turned into programs where teachers and administrators try to ‘reinforce’ students every time they ‘emit’ certain ‘behaviors’ the adults want to see. In those schools, educators often withhold ‘reinforcement’ when students ‘misbehave.’

Because theories of human behavior can guide the promotion of educational efforts, this section reviewed elements of behavioral and social science theories. Social Development Theory argued that social interaction precedes development; consciousness and cognition is the end product of socialization and social behavior. Constructivism as a paradigm or worldview posits that learning is an active, constructive process. The learner is an information constructor. People actively construct or create their own subjective representations of objective reality. New information is linked to prior knowledge, thus mental representations are subjective. Bandura’s Social Learning Theory posits that people learn from one another, via observation, imitation, and modeling. The theory has often been called a bridge between behaviorist and cognitive learning theories because it encompasses attention, memory, and motivation.

Guided by various theories, the review of literature revealed that various behavioral change theories, functional, transformational, reinforcement, social learning theories are positively associated with the behavior change of the learner. EE is increasingly a prominent part of school level education in Nepal. The EE goals are moving towards raising the awareness of the citizens, but the corresponding effect on participatory action is questionable. The goal of raising awareness is admirable and necessary, but it is only a beginning of the educational process and not an end in itself. In a formal education setting, it would seem that incorporating environmental issues into the curriculum would be relatively easy; but experience would suggest otherwise. Only a fraction of our young learners are being exposed to logically developed, well articulated EE programs. It is necessary to meet long term goals and objectives behind the initial phase of awareness. Resources available are limited and maximizing potential impact is necessary. It is important that people with significant training in educational design and strategies are utilized in conjunction with management decisions, in order that we can look past awareness at more lasting results. People from the physical and biological sciences are making decisions about socially related activities and programs, although this is not their area of expertise. Training in education, communications and marketing skills is critical to improve decisions about coordinating EE programs. Effective education and communication programs are an essential aspect of resource management and are keys to the integration of biological conservation with economic development (Jacobson, 1997). So now is the time to look at our students' change in environmental behavior and to explore if existing EE programs are able to drive them beyond the initial phase of awareness. It is important to focus on people working together in a synergistic way to solve the problem of developing participatory action, and advocates for the environment.

Research Approach on REB

Within the field of EE, the traditional emphasis of research was on the presentation of knowledge; what to teach and how to teach (Ballantyne, 1996; Meilberg, Kaskens, Stokking, & Van, 1999). More recently researchers have begun to explore how the students took the EE in their real life situation. While there were some progressive studies of this kind earlier, the majority of the studies have been more recent. Previous research had approached the study of students' REB in a variety of methods. Commonly, questionnaire survey was employed. Several researchers asked a wide range of questions of large number of subjects, using the answers to quantitatively analyze their knowledge, attitude, skill. Many approaches have been developed for assessing student involvement in environmental action and problem solving. In an approach to assess REB, Ramsey (1978) as cited in Wilke (1997) began his assessment by asking students to 'Please list many different kinds of environmental actions as you can'. Students were provided with a full page on which to list their responses. On next page, he presented students with the following questions and response found: 'Have you ever taken any of the environmental action performed? If so, list below the actions and the problems that action was directed towards, if you have taken no action, please write none'.

Second approach to assess environmental behavior given by Wisconsin Centre for EE, Wisconsin Department of Public Institute and Wisconsin EE Board is to present students with specified behaviors and ask them how often they engage in each 'Never', 'Almost never', 'Sometimes', 'Almost always', or 'Always' (WCEE, WDPI, & WEEB, 1992).

Third approach to assess how often students engage in different kinds of behavior was devised by Culen, Hungerford, Sivek, and Tomera, 1986 (as cited in

Wilke et al., 1997). Students will be presented with the five categories or modes of action and asked to record how many individual action they remembered taking over the past year or a self-selected issue. This measurement approach could focus on a single issue or a wide range of issues. It could also encompass all action taken in a one year period.

In another approach of assessing REB involves the identification of possible actions that fall into each of the five categories and collecting data on how frequently each person has engaged in the actions (Champeau & Peyton, 1983; Hungerford, Sia & Tomera, 1986; Marcinkow, 1989 as cited in Wilke et al., 1997). This type of assessment could be used to assess student learning (behavior) at several levels. For example**,** at the individual level (i.e., individual students as the focus of assessment), it could be used before and after a period of instruction on consumer-related environmental problems, issues and actions as a means of assessing any apparent changes pre to post intervention and at the classroom level by assessing the range of pre to posttest change. At the cadre level of analysis, this type of instrument could be administered periodically e.g., annually in cases where school administrators, supervisors, and/or teachers want to monitor longer-term effects of a multi-year program on student involvement in environmental behavior (Iozz, Laveult, & Marcinkowski, 1989).

The above last approach has advantages and limitations. Potential advantages include the relative ease of data collection and analysis and the use of data to assess other related learning outcomes. A noteworthy limitation to this approach, however, is that research literature clearly finds reliability and validity problems with self-reported data.

There are several ways to address this limitation, the primary way being to collect anecdotal reports of direct observations of student behaviors by circumstantial witnesses (Horsley, 1977 as cited in Wilke, 1997; Ramsey, Hungerford & Tomera, 1981). Theses witness can be students' guardians who can report household environmental behaviors and students' discussions about them, neighborhood who can report students' REB, teachers who can report environmental behaviors in school ((Iozzi, Laveult, & Marcinkowski, 1989). If students have engaged in an action project following their analysis and/or investigation of the associated issues (Hungerford & Volk, 1990), other approaches can be used to assess students' environmental behavior, such as: reviewing students' written reports of the development, implementation, and evaluation of their actions (written reports my include concept maps of the problems, issues, and actions addressed), asking each student or group to deliver an oral report of the development, implementation, and evaluation of their actions to the teacher or the class.

Whichever approach is used, the relationship of the individual action in regard to environmental issues must be central to the instruction if the desired outcome is that of REB. Environmental issues are known to students and to educators. If asked to identify issues, most would be able to identify several: global climate change, ozone depletion, acid rain, deforestation, ocean dumping, and so on. The challenge of EE is to make these issues meaningful to learners by focusing on individual contributions to the problems, and then, using problem-solving, decision-making strategies to develop, refine and redirect the thinking and the learning.

Chapter Summary

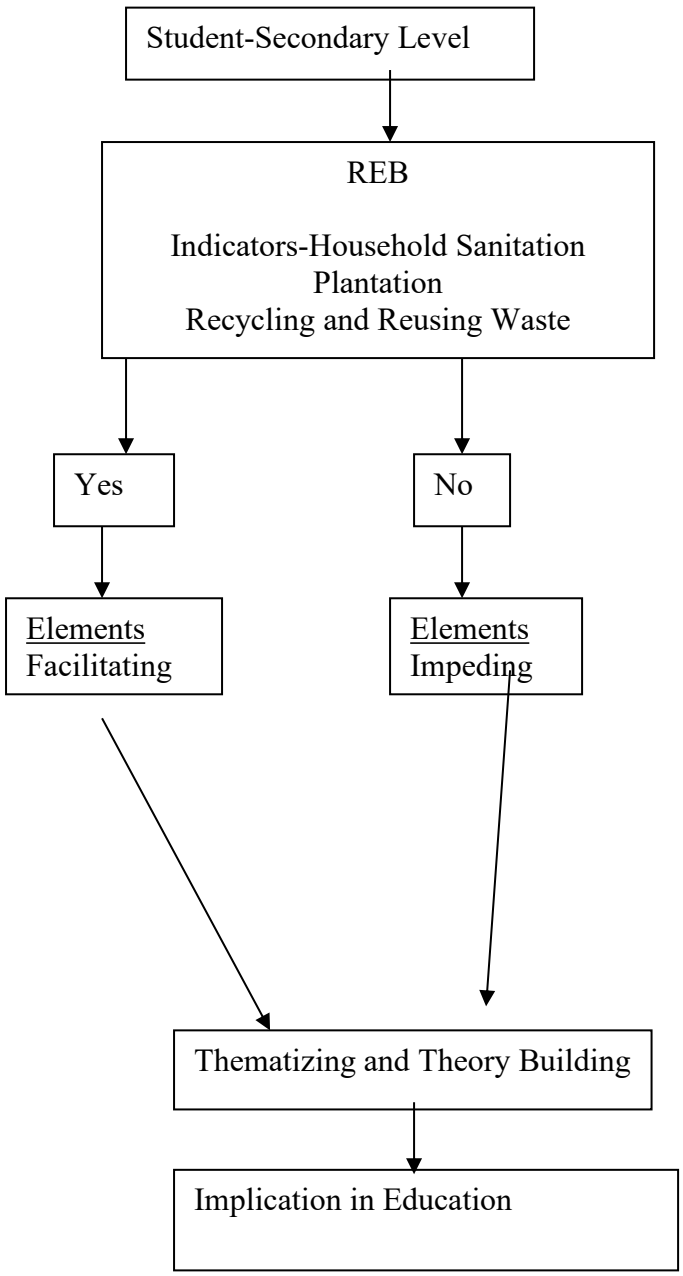
As this field of research is relatively new in Nepal and as of yet, still poorly documented, any reasonable literature was used. My literature review made me

understand that human beings and environment are closely linked with each other. However, if we go back a little into recent history, when ‘modern’ civilization set forth to discover the secrets of Nature, its intention was to conquer it, when I say Modern, I just put in quotes because it is only in terms of time that is modern, not in the matter of content. The literature showed that modern human beings have thrilled by their mastery over nature and exploited it excessively and mercilessly. However, nature now threatens to commit suicide unless it is restored. So to restore it, all the human beings must be prepared to recognize their environmental responsibilities and act upon them. This involves behaving in ways that cherish the natural environment and consider its need for future. My reading of the literary texts revealed me the importance of EE and its ultimate goal that is to nurture the behavior of the students towards REB. As I read the researches done by several researchers, it gave me indications about the factors responsible for developing REB and various behavioral change approaches needed. While I also found that most theories have been propounded to explain different motivational factors in different population, I tried to conceptualize within school students with a view to benefit our school EE.

Conceptual Framework

In an attempt to address the crises and to prevent the degrading environment, there has been increased focus on environment related research. More specifically, recent attempts have been made to make the research process more sensible. The conceptual framework upon which this research is stranded draws on theories that address development of REB which is presented in figure 1.

Figure 1. Conceptual Framework



CHAPTER III

GROUNDED THEORY-AN OVERVIEW

I've tried to provide just enough detail of grounded theory, particularly for my thesis purposes to serve as an overall framework. In tackling a grounded theory thesis, I read most of the articles on grounded theory found on books and downloaded through internet to be familiar with the methodological literature to justify my choice of grounded theory.

Overview

Grounded theory (GT) is a systematic research methodology in the social sciences emphasizing generation of theory from data in the process of conducting research. It was developed by two sociologists, Barney Glaser and Anselm Strauss. It is a research method in which rather than beginning by researching and developing a hypothesis, the first step is data collection, through a variety of methods. From the data collected, the key points are marked with a series of codes, which are extracted from the text. The codes are grouped into similar concepts in order to make them more workable. From these concepts, categories are formed, which are the basis for the creation of a theory, or a reverse engineered hypothesis. This contradicts the traditional model of research, where the researcher chooses a theoretical framework, and only then applies this model to the studied phenomenon.

Generally speaking, grounded theory is an approach for looking systematically at qualitative data (like transcripts of interviews or protocols of observations) aiming at the generation of theory. Sometimes, grounded theory is seen as a qualitative method, but grounded theory reaches farther, it combines a specific style of research

(or a paradigm) with pragmatic theory of action and with some methodological guidelines.

Important concepts of grounded theory are categories, codes and codings. The research principle behind grounded theory is neither inductive nor deductive, but combines both in a way of adductive reasoning. This leads to a research practice where data sampling, data analysis and theory development are not seen as distinct, but as different steps to be repeated until one can describe and explain the phenomenon that is to be researched. This stopping point is reached when new data does not change the emerging theory anymore.

Grounded theory according to Glaser emphasizes induction or emergence, and the individual researcher's creativity within a clear frame of stages, while Strauss is more interested in validation criteria and a systematic approach. Strauss named three basic elements that every grounded theory approach should include. These three elements are: Theoretical sensitive coding, that is, generating theoretical strong concepts from the data to explain the phenomenon researched; Theoretical sampling, that is, deciding whom to interview or what to observe next according to the state of theory generation, and that implies to start data analysis with the first interview, and write down memos and hypotheses early; There is need to compare between phenomena and contexts to make the theory strong.

Advocates of grounded theory tend to assume that through a process of induction, researchers can start with a broad and general topic of interest and narrow the focus by being sensitive to research participant-supplied concepts and relationships, eventually arriving at a unified grounded theory. Indeed, Corbin and Strauss (1990) defined theory as ‘a set of well developed categories that are systematically interrelated through statements of relationship to form a theoretical

framework that explains some relevant social phenomenon.' Phenomenologist, in contrast, may use similar approaches but do not expect to arrive at 'a set of well-developed categories,' at least not a single set, but rather assume that multiple research participants will bring multiple concepts and perspectives to the table, and the researcher's task is to present multiple induced sets of meanings and relationships, each forming a different perspective on the topic.

Glaser (1998) developed the concept of 'theoretical sensitivity' of the researcher as an acknowledgment of the subjective, creative nature of grounded theory development, necessary to identify what data are most salient to theory-building. Nonetheless, inherent in the inductive approach of grounded theory is the possibility that while the researcher claims that theoretical constructs 'emerge' from below, in fact the researcher may be forcing them from above.

When the researcher selects the 'ground' upon which grounded theory is to be built, sampling and generalization issues arise. Corbin and Strauss (1990) were aware of these problems, noting that good grounded theory meets the four criteria of fit of theory to the data (validated when theory makes sense to those active in the phenomenon being studied); understanding comprehensively the phenomenon studied; generality enabling generalization of the findings to a variety of other contexts, and control, meaning the story line anticipates possible confounding variables that may be brought up by challengers to the theory. In spite of these objectives, in any given piece of grounded theory research, one may ask if the 'ground' is representative of the universe to which the researcher wishes to generalize whatever theory is developed. All data is a fundamental property of GT which means that everything that gets in the researcher's way when studying a certain area is data. Not only interviews or observations but anything is data that helps the researcher generating concepts for the

emerging theory. Field notes can come from informal interviews, lectures, seminars, expert group meetings, newspaper articles, Internet mail lists, even television shows, conversations with friends etc.The grounded approach advocates the use of multiple data sources converging on the same phenomenon and terms these 'slices of data.' (Glaser & Strauss, 1967).

In theoretical sampling, no one kind of data on a neither category nor technique for data collection is necessarily appropriate. Different kinds of data give the analyst different views or vantage points from which to understand a category and to develop its properties; these different views they have called slices of data. While the researcher may use one technique of data collection primarily, theoretical sampling for saturation of a category allows a multifaceted investigation, in which there are no limits to the techniques of data collection, the way they are used, or the types of data acquired

The Elements of Grounded Theory

The basic idea of the grounded theory approach is to read and re-read a textual database such as a corpus of field notes and ‘discover’ or label variables and their interrelationships. The ability to perceive variables and relationships is termed ‘theoretical sensitivity’ and is affected by a number of things including one's reading of the literature and one's use of techniques designed to enhance sensitivity.

Of course, the data do not have to be literally textual -- they could be observations of behavior, such as interactions and events in a restaurant. Often they are in the form of field notes, which are like diary entries.

The three basic elements of grounded theory are concepts, categories and propositions. Concepts are the basic units of analysis since it is from conceptualization of data, not the actual data that theory is developed. Corbin and

Strauss (1990) stated, theories can't be built with actual incidents or activities as observed or reported; that is, from ‘raw data.’ The incidents, events, happenings are taken as, or analyzed as, potential indicators of phenomena, which are thereby given conceptual labels. Only by comparing incidents and naming like phenomena with the same term can the theorist accumulate the basic units for theory.

The second element of grounded theory, categories, was defined by Corbin and Strauss (1990) thus: Categories are higher in level and more abstract than the concepts they represent. They are generated through the same analytic process of making comparisons to highlight similarities and differences that is used to produce lower level concepts. Categories are the ‘cornerstones’ of developing theory. They provide the means by which the theory can be integrated.

The third element of grounded theory is propositions which indicate generalized relationships between a category and its concepts and between discrete categories. This third element was originally termed 'hypotheses' by Glaser and Strauss (1967).

The generation and development of concepts, categories and propositions is an iterative process. Grounded theory is not generated a priori and then subsequently tested. Rather, it is, inductively derived from the study of the phenomenon it represents. That is, discovered, developed, and provisionally verified through systematic data collection and analysis of data pertaining to that phenomenon. Therefore, data collection, analysis, and theory should stand in reciprocal relationship with each other. One does not begin with a theory, and then prove it. Rather, one begins with an area of study and what is relevant to that area is allowed to emerge. (Corbin & Strauss, 1990).

The process of naming or labeling things, categories, and properties is known as coding. Coding can be done very formally and systematically or quite informally. In grounded theory, it is normally done quite informally. For example, if after coding much text, some new categories are invented; grounded theorists do not normally go back to the earlier text to code for that category. However, maintaining an inventory of codes with their descriptions i.e., creating a codebook is useful, along with pointers to text that contain them. There are three types of coding: open coding, axial coding, and selective coding. These are analytic types and it does not necessarily follow that the researcher moves from open through axial to selective coding in a strict, consecutive manner.

Open Coding

Open coding or substantive coding is conceptualizing on the first level of abstraction. Written data from field notes or transcripts are conceptualized line by line. In the beginning of a study everything is coded in order to find out about the problem and how it is being resolved. The coding is often done in the margin of the field notes. This phase is often tedious since we are conceptualizing all incidents in the data, which yields many concepts. These are compared as we code more data, and merged into new concepts, and eventually renamed and modified. The GT researcher goes back and forth while comparing data, constantly modifying, and sharpening the growing theory at the same time.

Open coding requires application of what is referred to as 'the comparative method', that is, the asking of questions and the making of comparisons. Data are initially broken down by asking simple questions such as what, where, how, when, how much, etc. Subsequently, data are compared and similar incidents are grouped together and given the same conceptual label. The process of grouping concepts at a

higher, more abstract, level is termed categorizing. Open coding refers to that part of analysis that deals with the labeling and categorizing of phenomena as indicated by the data. The product of labeling and categorizing are concepts - the basic building blocks in grounded theory construction.

Open coding is the part of the analysis concerned with identifying, naming, categorizing and describing phenomena found in the text. Essentially, each line, sentence, paragraph etc. is read in search of the answer to the repeated question ‘what is this about? What is being referenced here?’ Whether these properties or dimensions come from the data itself, from research participants, or from the mind of the researcher depends on the goals of the research. It is important to have fairly abstract categories in addition to very concrete ones, as the abstract ones help to generate general theory.

Axial Coding

Whereas open coding fractures the data into concepts and categories, axial coding puts those data back together in new ways by making connections between a category and its sub-categories (i.e., not between discrete categories which is done in selective coding). Thus, axial coding refers to the process of developing main categories and their sub-categories.

Axial coding is the process of relating codes (categories and properties) to each other, via a combination of inductive and deductive thinking. To simplify this process, rather than look for any kind of relations, grounded theorists emphasize causal relationships, and fit things into a basic frame of generic relationships (Appendix P).

It should be noted again that a fallacy of some grounded theory work is that they take the research participant's understanding of what causes what as truth. That is,

they see the informant as an insider expert, and the model they create is really the informant's folk model.

Selective Coding

Selective coding involves the integration of the categories that have been developed to form the initial theoretical framework. Selective coding is the process of choosing one category to be the core category, and relating all other categories to that category. The essential idea is to develop a single storyline around which all everything else is draped. There is a belief that such a core concept always exists. I believe grounded theory draws from literary analysis, and one can see it here. The advice for building theory parallels advice for writing a story. Selective coding is about finding the driver that impels the story forward.

Firstly, a story line is either generated or made explicit. A story is simply a descriptive narrative about the central phenomenon of study and the story line is the conceptualization of this story (abstracting). When analyzed, the story line becomes the core category. The core category must be the sun, standing in orderly systematic relationships to its planets (Corbin & Strauss, 1990). Selective coding is done after having found the core variable or what is thought to be the core, the tentative core. The core explains the behavior of the participants in resolving their main concern. The tentative core is never wrong. It just more or less fits with the data. After having chosen your core variable you selectively code data with the core guiding you’re coding, not bothering about concepts with little importance to the core and its sub cores. Selective coding delimits the study, which makes it move fast. This is indeed encouraged while doing GT (Glaser, 1998) since GT is not concerned with data accuracy as in descriptive research but is about generating concepts that are abstract of time, place and people. Selective coding could be done by going over old field

notes or memos which are already coded once at an earlier stage or by coding newly gathered data.

Memos

Memos are short documents that one writes to oneself as one proceeds through the analysis of a corpus of data. Equally important is the theoretical note. A theoretical note is anything from a post-it that notes how something in the text or codes relates to the literature, to a 5-page paper developing the theoretical implications of something. The final theory and report is typically the integration of several theoretical memos. Writing theoretical memos allows us to think theoretically without the pressure of working on 'the' paper.

An important activity during coding is the writing of memos. Corbin and Strauss (1990) maintained that, at least three types of memo may be distinguished: code memos, theoretical memos and operational memos. Code memos relate to open coding and thus focus on conceptual labeling. Theoretical memos relate to axial and selective coding and thus focus on paradigm features and indications of process. Finally, operational memos contain directions relating to the evolving research design. Writing theoretical memos is an integral part of doing grounded theory. Since the analyst cannot readily keep track of all the categories, properties, hypotheses, and generative questions that evolve from the analytical process, there must be a system for doing so. The use of memos constitutes such a system. Memos are not simply 'ideas.' They are involved in the formulation and revision of theory during the research process.

Memoing is important in the early phase of a GT study such as open coding. The researcher is then conceptualizing incidents, and memoing helps this process. Theoretical memos can be anything written or drawn in the constant comparison that

makes up a GT. Memos are important tools to both refine and keep track of ideas that develop when you compare incidents to incidents and then concepts to concepts in the evolving theory. In memos you develop ideas about naming concepts and relating them to each other. In memos you try the relationships between concepts in two-by-two tables, in diagrams or figures or whatever makes the ideas flow, and generates comparative power. Without memoing the theory is superficial and the concepts generated not very original. Memoing works as an accumulation of written ideas into a bank of ideas about concepts and how they relate to each other. This bank contains rich parts of what will later be the written theory. Memoing is total creative freedom without rules of writing, grammar or style (Glaser, 1998). The writing must be an instrument for outflow of ideas, and nothing else. When you write memos the ideas become more realistic, being converted from thoughts in your mind to words, and thus ideas communicable to the afterworld. In GT the preconscious processing that occurs when coding and comparing is recognized. The researcher is encouraged to register ideas about the ongoing study that eventually pop up in everyday situations, and awareness of the serendipity of the method is also necessary to achieve good results.

Sorting

In the next step memos are sorted, which is the key to formulate the theory for presentation to others. Sorting puts fractured data back together. During sorting lots of new ideas emerge, which in turn are recorded in new memos giving the memo-on-memos phenomenon. Sorting memos generates theory that explains the main action in the studied area. A theory written from unsorted memos may be rich in ideas but the connection between concepts is weak.

Writing

Writing up the sorted memo piles follows after sorting, and at this stage the theory is close to the written GT product. The different categories are now related to each other and the core variable. The theoretical density should be dosed so concepts are mixed with description in words, tables, or figures to optimize readability. In the later rewriting the relevant literature is woven in to put the theory in a scholarly context. Finally, the GT is edited for style and language and eventually submitted for publication.

In most behavioral research endeavors persons are units of analysis, whereas in GT the unit of analysis is the incident (Glaser & Strauss, 1967). There are normally at least several hundred incidents analyzed in a GT study since every participant normally reports many incidents. When comparing many incidents in a certain area, the emerging concepts and their relationships are in reality probability statements. Consequently, GT is not a qualitative method but general methods that can use any kind of data even if qualitative at the moment are most popular (Glaser, 2001). However, although working with probabilities, most GT studies are considered as qualitative since statistical methods are not used, and figures not presented. The results of GT are not a reporting of facts but a set of probability statements about the relationship between concepts, or an integrated set of conceptual hypotheses developed from empirical data (Glaser, 1998). Validity in its traditional sense is consequently not an issue in GT, which instead should be judged by fit, relevance, workability, and modifiability (Glaser & Strauss, 1967).

Fit has to do with how closely concepts fit with the incidents they are representing, and this is related to how thoroughly the constant comparison of incidents to concepts was done.

Relevance. A relevant study deals with the real concern of participants, evokes ‘grab’ (captures the attention) and is not only of academic interest.

Workability. The theory works when it explains how the problem is being solved with much variation.

Modifiability. A modifiable theory can be altered when new relevant data is compared to existing data. A GT is never right or wrong, it just has more or less fit, relevance, workability and modifiability.

GT according to Glaser gives the researcher freedom to generate new concepts explaining human behavior. This freedom is optimal when the researcher refrains from taping interviews, doing a pre research literature review, and talking about the research before it is written up. These rules make GT different from most other methods using qualitative data. Studying the literature of the area under study gives preconceptions about what to find and the researcher gets desensitized by borrowed concepts. Instead, grounded theories in other areas and GT method books increase theoretical sensitivity. The literature should instead be read in the sorting stage being treated as more data to code and compare with what has already been coded and generated. Taping and transcribing interviews is common in qualitative research, but is counterproductive and a waste of time in GT which moves fast when the researcher delimits the data by field-noting interviews and soon after generates concepts that fit with data, are relevant and work in explaining what participants are doing to resolve their main concern. Talking about the theory before it is written up drains the researcher of motivational energy. Talking can either render praise or criticism, and both diminish the motivational drive to write memos that develop and refine the concepts and the theory (Glaser, 1998).

Chapter Summary

As grounded theory is my research tradition, through this chapter I had tried to explicit an overview of this theory. What most differentiates grounded theory from much other research is that it is explicitly emergent. It does not test a hypothesis. It sets out to find what theory accounts for the research situation as it is. In this respect doing grounded theory is to understand the research situation and to discover the theory implicit in the data.

CHAPTER IV

RESEARCH METHODOLOGY

This chapter outlines the investigative drive with regard to my research planned approach and methods I made for acquiring knowledge on my study area. I initiate by briefly describing a preliminary study in order to sky clear my readers. I then move on to present my overall research design incorporating the why I chose qualitative approach, elucidating in particular, reasons for taking a grounded theory approach in order to answer my research questions. I continue next to elucidate the research methods used with regard to the selection of research participants suited for grounded theory research as well as data collection and analysis and concluding it with a brief discussion on how I dealt with authenticity, credibility and ethical issues.

Flashback

Before I began this study I conducted the literature review process with the added luxury of time. A primary objective was to find relevant literatures of EE and REB. As this field is relatively new in Nepal and as of yet, still poorly documented, any reasonable literature was used. I have reviewed optimistically about the general state of EE all over the world including Nepal. It was perceived that all over the world, debate and activity in the field of EE is indeed healthy; yet there remain numerous ongoing issues to resolve and serious challenges ahead. Despite the positive tone adopted, quite rightly, by many environmental educators, it is nevertheless clear that education is far from realizing its maximum potential in terms of helping people understand and appreciate the environment and their role as producers and consumers within it.

Indisputably there is no doubt about the urgent need for promoting change in behavior in relation to the environment; for encouraging people to appreciate and enjoy the world around them with the knowledge, skills and attitudes that will encourage them to adopt REB. Around the world everyone ponder on how best to achieve these goals and on the most appropriate strategies for developing and implementing programs of EE. In view of this positive trend, I felt a need to know more about this with reference to the local context. I wished to learn about the perception of environmentalist, sociologist, educators, and parents with regard to environmental conservation issues. I was equally keen to know if any academic or related literature had been published in Nepal on this specific area.

For the reason stated above, I conducted a preliminary study which led to the discovery that there was no specific literature available addressing the issue of REB in the context of Nepal and Nepalese children. The issue of REB has been identified and acknowledged all over the world, however, as far as Nepal is concerned, this area is still in infancy or yet to be born among concerned authorities. As a result of all those informal conversation with environmentalist, sociologist, educators, and parents, I found that this issue is a burning issue and need to be researched.

My preliminary study had also shown me that different researchers have put forward their own viewpoints regarding development of REB and teaching strategies the teachers have to adopt. However we are unknown in our own context, we don't know how our students can develop REB and what could be the teaching strategies our teachers can adopt in order to success the goal of EE. So I chose this research area which is concerned with what are the forces and influences that drive their occurrence. Since the purpose of my study was to highlight the factors that can enhance in development of REB through school EE amongst our Nepalese students, I had to form

my research questions accordingly. The quest to find answers to those questions and gained informed knowledge; I made my decision to conduct a qualitative study under grounded theory.

Qualitative Research

Since the purpose of my study was to find out the ways our students can develop REB, I preferred qualitative research approach in collecting information from my research participants. The reason is that qualitative method has the advantage (DiClemente, 1993; Hamilton & Raush, 2006; Steckler, 1992; Watt, 2007; Weinreich, 1996) in that they generate rich, detailed data that leave the participants' perspectives intact and provide a context for environmental behavior. As Morse (1994) wrote, conducting qualitative research is like walking into the wilderness: some trails are well trodden, whereas others not visible at first sight. The map, which helps a person decide which forks to take, becomes clearer as each person is interviewed and observed along the path.

To those ends, this study employed qualitative research methods to illuminate, REB from the insight provided by participants. Qualitative research is a synonymously termed for a number of research approaches associated with the interpretive and critical science perspectives. All of the particular approaches reflect a continuum of inquiry foci tightly bound to the qualitative paradigm and each may have characteristic interpretive methodologies. Qualitative research methods are valuable in providing rich descriptions of complex phenomena; tracking unique or unexpected events, illuminating the experience and interpretation of events by actors with widely differing stakes and roles; giving voice to those whose views are rarely heard; conducting initial explorations to develop theories; and to generate and test hypotheses; and moving toward explanations (Best & Kahn, 1999). Qualitative

research is characterized by an emphasis on describing, understanding, and explaining complex phenomena - on studying, for example, the relationships, patterns and configurations among factors; or the context in which activities occur. The focus is on understanding the full multi-dimensional, dynamic picture of the subject of study.

Qualitative approaches contrast with quantitative methods that aim to divide phenomena into manageable, clearly defined pieces, or variables. Quantification is good for separating phenomena into distinct and workable elements of a well-defined conceptual framework. But when we focus research on what we already know how to quantify, (e.g., what can be reliably quantified), we may miss factors that are key to a real understanding of the phenomena being studied.

One cannot understand human behavior without understanding the framework within which subjects interpret their thoughts, feelings, and actions. In fact, the ‘objective ‘scientist, by coding and standardizing, may destroy valuable data while imposing her world on the subjects (Marshall & Rossman, 1980). Qualitative methods are used to study human behavior and behavior changes. Complex behavior is not well captured by quantitative techniques. Thus I used qualitative methods to find patterns. Qualitative analysis techniques are therefore both inductive and interactive. Through qualitative study I aim for rich description through my research participants to answer my research problems. Because of its facility to examine subjects in depth, it provides a unique tool for studying what lies behind, or underpins, a decision, attitude, behavior or other phenomena. The very nature of the in-depth, detailed descriptions of events, interviews is what makes qualitative research so powerful. The richness of the data permits a fuller understanding of what is being studied (Bryman, 2001; Patton, 1990). This makes it possible to answer my research questions.

Grounded Theory as My Research Tradition

Because I sought to understand the deeper meaning individual attach to their action, grounded theory approach emerged from sociology disciplinary origin best served the intent of my study. Grounded theory is a general research method for behavioral science developed by the sociologists Barney Glaser (1930) and Anselm Strauss (1916-1996). As the name underscores, I had tried to generate theory from my research data. According to Creswell (1998), the centerpiece of GT research is the development or generation of a theory closely related to the context of the phenomena being studied. GT is a systematic generation of theory from data that contains both inductive and deductive thinking.

Hence, I found Grounded theory methodology as a suitable qualitative research approach for social inquiry into behavioral practice, leading to theory development in behavior change. Given the variations in, and subjectivity attached to, the manner in which qualitative research is carried out, as a researcher I could explain the process of how a theory about a behavioral phenomenon was generated.

Research Design

As per Lewis (2003), a good research design is one which has a clearly defined purpose, in which there is coherence between the research questions and the methods or approaches proposed, and in which generated data valid and reliable. In order to make my research design an interactive one, I coupled my research components, namely the study population and study location, participant recruitment, data generation, data analysis, credibility and authenticity of the research and ethical considerations.

Study Group and Study Location

The general rule in qualitative research, particularly in grounded theory approach, is that I have to continue to population until I did not get any new information or are no longer gaining new insights (Denzin & Lincoln, 2005). My research was more concerned to generalize findings to theory development than to generalize findings to populations, I used theoretical sampling technique. Theoretical Sampling is the process of data collection for generating theory whereby I could jointly collect, code, and analyzes my data and decides what data to collect next and where to find them, in order to develop my theory as it emerges (Glaser & Strauss, 1967). There is no magic number of theoretical sampling (Glaser, 1996). There was no population frame or list available in advance for sampling and data collection happened simultaneously. The data were collected; it was examined to pull out similar and reoccurring themes. Thus a study group consists of members who were able to function as informants by providing rich and detail description of the factors being investigated.

A preliminary study was conducted on experts to select specific behaviors that could be studied as representative of REB. The questionnaire (Appendix G) was given to those experts. They listed a list of activities (Appendix H) which can be considered as REB on the basis of their course contents and can be performed by a person of age 14-16. I had to select only few behaviors among many given behaviors due to delimitation of time which were relevant to the daily practices of an individual with diverse living situation. Among the specific behaviors listed by them, only three were chosen which comes under environmental sanitation. The list of activities given by the experts is given in Appendix H.

As a researcher, I had a planned schedule to go through research participants and observed their particular behavior. In order to be assured that REB were being practiced; I targeted students who were taking EE at school. My journey started from one place to another to get the information of secondary level students of that place. For that I had a contact with different clubs and community members. A request letter was given to them to get the information of the list of secondary level students of that area. Please refer to Appendix A for the letter given to them. With their permission, I contacted in their house either by telephone or going their houses to get permission to conduct my research. When they agreed my proposal, I gave them a request letter (Appendix B) to the family member as well as the student (Appendix D) for their consent to precede my research. At first I chose one of the students who was studying in public school and presently living in urban, I gave her my prepared theoretical questions on EE to check the knowledge on environmental sanitation and other environment related matters.

I checked the answer paper with the help of one of the teacher I know who was teaching EE subject. She answered my questions (Annex F), and then I took her as my research participant. I then conducted my study on the research area and then I selected new participant to refine the concepts that have been developed from previous participant. Secondly I took the female participant from public school and presently living in rural area.

For the purpose of my study, I was then saturated with ten participants; four were girls and six were boys aged fifteen to sixteen who were studying in grade ten. I considered this grade to be appropriate because both my preliminary study and literature review had revealed that this is the age group which should be sensitized with the issues of environment for future. And moreover they have already studied EE

for so many years in school. The children belonged to both public to private school, and their selection was based on obtaining a wider reach to explore new emerging concepts. Even though the total number of study groups was relatively small, the selected number allowed me to generate sufficient variety and depth of data. The material in the data from those ten research participants met the requirement for generating a variety of emerging concepts.

Although study location were schools within Kathmandu Valley and residing in Kathmandu Valley, the research participants hailed from different social backgrounds, some of them migrated from outside, thereby ensuring a degree of variety.

Data Generation

Many approaches have been developed for assessing student involvement in environmental action. Such kind of study uses an approach which involves the identification of possible actions and collecting data on how frequently each person has engaged in the actions (Champeau & Peyton, 1983; Marcinkow, 1989 as cited in Wilke, 1997; Sia, Hungerford, & Tomera, 1986). Hence, for my study, approaches to collecting data were focused on naturally occurring data and generated data throughout the interventions of this research. These methods are needed in a variety of research settings, partly because they provide the only means of understanding certain psychological phenomena, such as motivations, beliefs, decision processes, but also because they allow participants' reflections on, and understanding of, social phenomena to be gained. Naturally occurring data were developed to allow investigation of phenomena in their natural settings (Ritche, 2003). They provide data which is an 'enactment' of social behavior in its own social setting. There are a number of different approaches under naturally occurring data, among which I have

selected observation method, since this method offered me the opportunity to record and analyze behavior and interactions as they occur. I was able to see the events, actions, and experiences through my own eyes, without any construction on the part of those involved. Observation has been the principal method of gathering information about an event. Human behavior is often too subtle and illusive; the same expression of behavior can have altogether different origin. So observer must have a very receptive mind to observe all that are needed during observation (Majumdar, 2005). I employed direct observation method to witness the particular action at first hand so that I could observe the reality to capture in my mind the real picture, as it exists. One of the most important questions in observation method is what would be the position and task of the observer to get an unbiased and complete picture of the research participant under observation to avoid arousing suspicion about my interest among my research participants. Since my aim was to observe research participant in a natural field setting i.e. without trying to modify behavior of the research participants by giving external inputs.

The second approach I chose was the generated method which involves 'reconstruction' (Bryman, 2001) and require re-processing and re-telling of attitudes, beliefs, behavior or other phenomena. Generated data collection methods (Lewis, 2003) has an advantage in that it gave my participants a direct and explicit opportunity to convey their own meanings and interpretations through the explanations they provide, whether spontaneously or answer to the researcher's probing. The experience, thought, event, behavior or whatever, is mentally re-processed and verbally recounted by study participants. Generated data give insight into people's own perspectives on and interpretation of their beliefs and behaviors-and, most crucially, an understanding of the meaning that they attach to them. There

are different ways in which data can be generated. This research used individual interview method which is the most widely used method in qualitative research. They take different forms but a key feature is their ability to provide an undiluted focus on the individual. They provided an opportunity for detailed investigation of people's personal perspectives, for in-depth understanding of the personal context within which the research phenomena were located, and for very detailed subject coverage. They were also particularly well suited to research that requires an understanding of deeply rooted or delicate phenomena or responses to complex systems, processes or experiences because of the depth of focus and the opportunity they offer for clarification and detailed understanding (Lewis & Ritchie, 2003). The very nature of the in-depth, detailed descriptions of events, interviews is what makes qualitative research so powerful. The richness of the data permits a fuller understanding of what is being studied (Patton, 1990). An in-depth interview is an interview whose purpose is to obtain descriptions of the lived world of the interviewee with respect to interpreting the meaning of the described phenomena (Kvale, 1996). The students were interviewed using interview protocols.

Consistent with Kvale's definition, the purpose of the interview was to gather information regarding noteworthy change in student's behavior and the success of the interview depends, to a large extent, on the personal qualities of the individual interviewer. In contrast to quantitative interviewing, qualitative interview, are themselves, research instruments and there are some key requirements of them. To fulfill those requirements, I heard, digested and comprehend the participants' response in order to probe further. At the same I had to think quickly to distill the essential points of what the participant was saying. It was also essential for me to establish a

good rapport with the participant which I think I succeed it by their feeling of ease and trust with me during interview.

The interview stages I traversed with each all the participants were very overwhelming in which in the first stage of interview, I made just an informal conversation avoiding research topic until the interview began to make the participant at their ease. Once the participant seems comfortable with me, I moved on to the next stage. Since I had already provided a clear reiteration of the nature and purpose of my research the very first day of my research, I just reaffirmed confidentiality and took their permission to record their interview. To my request, a room was arranged which was suitably quiet and comfortable for the interview to proceed without any distraction. During interview, I guided the participant through the key themes-both those I anticipated and those which emerged from their response. I also let them guide the inquiry process if needed. At the end of the interview, I asked the participants if he or she wanted to add any further comments. Each research participants was met four to five times for interview that lasted about an hour. Each interview was taped, transcribed and filed in my interview record file.

A noteworthy limitation to this approach was the reliability and validity problems with self-reported data. There are several ways to address this limitation, the primary way being to collect anecdotal reports of direct observations of student behaviors by circumstantial witnesses (Horsley, 1977; Ramsey, Hungerford, & Tomera, 1981). Theses witness were students' guardians who reported environmental behaviors and students' discussions about them. Reviewing students' written reports of the development, implementation, and evaluation of their actions in case of students' engagement in an action project.

During observation I observed them how well a process has worked. I kept my notes to do my own self-analysis of how well something was working or not.

Data Analysis

Analysis is a challenge and exciting stage of the qualitative research process. It requires a mix of creativity and systematic searching, a blend of inspiration and diligent detection. And although there will be a stage dedicated to analysis, the pathways to forming ideas to pursue, phenomena to capture, theories to test begins right at the start of the research study and ends while writing up the results. It is an inherent and ongoing part of qualitative research.

Data generated by interviewing were then analyzed by a grounded theory approach (Corbin & Strauss, 1998; Glaser & Strauss, 1967) guided by the primary research question, 'What do secondary age level students report about themselves with respect to their REB?' Grounded theory involves the generation of analytical categories and their dimensions, and the identification of relationships between them. The process of data collection and conceptualization continued until categories and relationship were 'saturated', that is new data did not add to the developing theories. The primary focus of grounded theory analytical approaches was mainly focused with capturing and interpreting common sense, substantive meanings in the data.

Many writers have emphasizes the pivotal role that analysts themselves play in carrying out qualitative research analysis. It is the analyst's conceptual skills that will be needed to read, sift, order, synthesis and interpret the data. No single method of analysis will replace these skills (Atkinson & Coffey, 1996; Weitzman, 2000).

Grounded theory begins with a research situation. Within that situation, my task as a researcher was to understand what is happening, and how the participants manage their roles. Of course I had to keep my eyes and ears open. I did this through

observation, conversation and interview. There was a lot to be learned just by observing, some of it evident within minutes of entering a situation. Interviews were the main source of the information from which I could develop my theory from. During each interview session, I was also involved in note-taking, coding and memoing the participants' responses.

Note-taking. Glaser recommends against recording or taking notes during an interview of other data collection session. Dick (2005) also agreed with his avoidance of tape recordings and word-by-word transcripts. As per his suggestion, after each bout of data collection, I took key-word notes during the interviews: this I had labeled 'note-taking' and convert them to themes afterwards. I also tape-recorded the interviews and checked my notes against the tape recording. Constant comparison is the heart of the process. At first I compared interview to interview. When theory begun to emerge, I compared data to theory. The results of this comparison were written in the margin of the note-taking as coding.

Coding. After having a set of interview notes written in the left hand two-thirds of the page, I then started coding.

Constant comparison. For the first interview I was merely asking myself: 'What is going on here? What is the situation? How is the person managing that situation?' Therefore, what categories are suggested by that? I coded the second interview with the first interview with the emerging theory in mind. That's constant comparison: initially comparing data set to data set; later comparing data set to theory. I was aware of any theoretical ideas that came to mind. If any do, I noted them down immediately. As I coded, certain theoretical propositions occurred to me such as links between categories, or about a core category: a category which appeared central to the

study. As the categories and properties emerged, they and their links to the core category provided the theory. I then started memoing.

Memoing. I have mentioned already that memoing continued in parallel with data collection, note-taking and coding. In short, in using grounded theory methodology I assumed that the theory is concealed in my data for me to discover. Coding makes visible some of its components. Memoing adds the relationships which link the categories to each other. Then I had to decide how I would structure the report to communicate my theory to others. That is the purpose of sorting.

Sorting. For the actual sorting, first I group them on the basis of the similar categories or properties they address. I then arrange the groups to reflect on the sorting surface their relationship.

Writing up. Having done all this, coding, memoing, sorting, the writing was done by first draft by putting them in sequence and integrating them into a coherent argument. In an emergent study, the literature is not given a position of privilege; it is treated as data, with the same status as other data. I also compared literature to the emerging theory in the same way that I compared data to the emerging theory.

As the data collection and coding preceded the codes and the memos accumulated. I added to my population through theoretical sampling. This is purposive sampling which increased the diversity of my population, searching for different properties. As my core category and its linked categories saturated; I stopped. Now it was time to move to sorting. The order of my sorted memos provided me with the skeleton, and many of the words, of my thesis. I then began writing.

In short, data collection, note-taking, coding and memoing occurred simultaneously from the beginning. Sorting occurred when all categories were saturated. Writing occurred after sorting.

Credibility and Authenticity of the Research

In qualitative research, the term ‘credible’ is used to describe the concept of validity (Guba & Lincoln, 1981). In this research, careful steps were taken to ensure credibility. In particular, judgments about the rigor of research are based on criteria which make sense for the methodology for which they were developed. Grounded theory has its own sources of rigor. As Glaser (1998) suggested, I considered the three main criteria for judging the adequacy of the emerging theory: that it fits the situation,; secondly that is workability, that it helps the people in the situation to make sense of their experience and to manage the situation better, and thirdly, relevance, that is, I made it a relevant study which deals with the real concern of participants, and is not only of my academic interest.

Rubin and Rubin (1995) write that validity is supported by consistency across cases. As a researcher, I was quite conscious not to make any conclusions prematurely. Methodological triangulation was used to ensure the credibility of the findings. The aim in triangulation is to choose triangulation sources with different biases, different strengths, so they would complement each other (Miles & Huberman, 1994). The circumstantial witnesses was interviewed which confirmed the reliability of what students shared with regard to their behavior. Method triangulation was done by comparing data from two different methods of data collection.

Huberman and Miles (1994) suggested the issues of reliability ride largely on the skills of the researcher. The makers of a good qualitative ‘researcher-instrument’ are familiarity with the phenomenon and the setting under study, strong conceptual interests, a multidisciplinary approach, and good ‘investigative’ skills, including doggedness, the ability to draw people out, and the ability to ward off premature

closure. As Kvale (1996) suggested, I focused on the consistency of research findings and the rigor of methodology.

Reflecting on grounded theory research study, as Chiovitti (2003) suggested, I used eight methods of research practice to enhance rigor in the course of conducting my study, they were:

1. I let my participants to guide the inquiry process;
2. I thoroughly checked the theoretical construction generated against participants' meanings of the phenomenon;
3. I used participants' actual words in the theory;
4. I articulated my personal views and insights about the phenomenon explored;
5. I specified the criteria built into the researcher's thinking;
6. I specified how and why participants in the study were selected;
7. I delineate the scope of the research; and
8. I described how the literature relates to each category which emerged in the theory.

While reporting, I was systematic, honest about methodology, analysis, check interpretations with others, verify multiple sources, and be reflective and thorough. Data triangulation was used to make use of different sources to provide reliability for corroborate in this study. In the beginning of a study everything was coded in order to find out about the problem and how it could be resolved. These were compared as I coded more data, and merged into new concepts, and eventually renamed and modified. I went back and forth while comparing data, constantly modifying, and sharpening the growing theory.

I also made my considerable effort to capture the specific nuances of all the statements made by the research participants in the course of translation from Nepali

to English. I therefore verified with other individual for this purpose of reducing the risk of leaving key tones. For this I enlisted the aid of an English teacher, well trained in translation practice.

Ethical Considerations

Any research study raises ethical considerations. In-depth, unstructured nature of qualitative research and the facts it raises issues that are not always anticipated mean that ethical considerations have a particular resonance in qualitative research studies (Lewis, 2003). Above all, I made every effort to uphold ethical research conducted throughout my study. I had designed, conducted and reported research in accordance with recognized standards of ethical research. I also planned my research so as to minimize the possibility that the results will be misleading. I conducted research with due concern for the welfare of participants and the society as a whole. I strictly adhered to these important issues, namely, informed consent, anonymity and confidentiality and protecting participant from harm. For children aged under sixteen, consent to approach should also be sough from parents (Lewis, 2003). So the participants as well as their parents' informed consent to participate were obtained in the beginning of the study. Prior to conducting research, I entered into an agreement with the participants that clarified the nature of the research and their responsibilities. I too informed them with information about the purpose of study, how the data will be used, the subjects likely to be covered, the amount of time required. I used the language that is reasonably understandable with resource participants in obtaining their appropriate informed consent. I informed participants that they are free to participate or to decline to participate or to withdraw from the research. I also obtained informed consent from research participants to record them. The participants were also made clear of their anonymity, confidentiality as well as my considerations

in protecting them from any harm as consequences of my research topic. I took care not to relate specific information about them to others and was particularly careful about sharing information with any other person involved in my research.

To feel confident that the participants were freely giving their consent to be interviewed, an ‘interview contract’ letter was prepared which contain predetermined length of time, on a particular topic and under clear condition of confidentiality.

Additionally, while looking for their co-operation, I treated all my research participants with respect and followed through with all the agreements I made and was realistic in any negotiation I entered with them. I also made sincere efforts to remain honest during writing and my reporting my findings. These are the particular ways in which I dealt with the ethical issues connected to my research work.

Table 1

The Process of Building Grounded Theory

Phase	Activity	Rationale
Research design phase		
Review Of Literature	Research Questions reparation	Focuses Efforts
Selecting Cases	Theoretical Sampling	Focuses Efforts Useful Cases
Data collection phase		
Develop Rigorous Data Collection Protocol	Qualitative Employ two data collection methods with circumstantial witnesses	Strengthens grounding of theory by triangulation of evidence. Enhances reliability and internal validity
Entering The Field	Overlap data collection and analysis	Speeded analysis and helped in adjustments to data collection
Data analysis phase		
Analyzing data relating to the first case	use open coding	develops concepts, categories and properties
	use axial coding	develop connections between a category and its sub-categories
	use selective coding	integrate categories to build theoretical framework all forms of coding enhanced internal validity
theoretical sampling	replication across cases until theoretical saturation	sharpened theoretical framework
reaching closure	theoretical saturation	ended process when marginal improvement became small
literature comparison phase		
compared emergent theory with extant literature	Comparison	improved internal and external validity by establishing the domain to which the study's findings could be generalized

Note. Adapted from "Grounded theory," by Dick (2005)

Chapter Summary

The design of my study is logically articulated to my research plan which would help me to focus the research process, identify potential problem and solutions, reconceptualize it and develop more useful strategies to successfully complete my research process.

The pursuit to find answers to research questions and gained informed knowledge; I made my decision to conduct a qualitative study. Because I sought to understand the deeper meaning individual attach to their action, grounded theory approach emerged from sociology disciplinary origin best served the intent of my study. The methods I used for data generation, particularly developing research questions and conducting observation and in-depth interviews helped me to adequately answer my research questions. The answer to my research questions are presented in the following chapters, the analysis of the data from the detail accounts of the research participants through grounded theory methodology and then theorizing the themes generated from the analysis.

CHAPTER V

FINDINGS: A JOURNEY IN SEARCHING THE THEME

My intent in the first four chapters was to frame this study for the readers. In the previous chapter, I discussed the importance of EE, its issues regarding REB, my interview and observation method as well as grounded theory of application for my research. In this chapter, I offer research participants' response in a narrative way what I learnt from them. Specifically, the purpose of this chapter is to share quote from their responses, analyze them and reveal their reflection and interpretation.

As I have already mentioned that the purpose of my research was to identify the elements responsible for generating REB among secondary level students. Since the sampling technique was theoretical sampling that is purposive, the original brief for the study required a population of the general population-that is, there was no specific population to be targeted. An early decision was made to confine the study to students of secondary level. Firstly I took the girl student studying in public school. The student was asked to answer my theoretical questions so as to ensure her basic knowledge on environment. This was done because students who could not answer the questions were unimportant, but because the issues of generation of REB from a person having knowledge were more relevant for my thesis purpose than without having knowledge.

I have begun several in-depth interview sessions with my research participants along with their some background information. The pseudo names of the research participants are presented and the name of the schools is also not presented in order to protect their identities. My research participants consisted of ten students of grade ten. After considerable effort to recruit participants, I was able to meet with ten students,

four female and six were male students. Elements of each participant's gender, type of school, and type of residential area will be evident. I begin with the four female participants followed by six male participants. The use of fictitious names for the participants maintains confidentiality. The details of my research participants are given in Appendix I.

After imparting details of my research participants, now my next move is to present my findings based on their response and my self observation. During visit in my research participants' house, I observed their interests in particular dealings. In searching answer to my research question I keenly watched them on their involvement in daily household sanitation; I checked them mainly on how they helped their family members in keeping their house clean; such as brooming the house and near by places, helping other family members in cleaning them; I also basically observed them how much they take care of things they use in their house, such as dust the furniture, keep the wash basin, bedroom, drawing room etc clean, throw all rubbish in the dustbin, do not spread the books here and there, manage waste, their interest in plants, planting flowers, watering and manuring them; their involvement in outdoor environmental campaign and surrounding environment and reusing and recycling household wastes; using non plastic bags while shopping, reusing and recycling household wastes; their involvement in community environmental campaign. Then I asked them to identify those experiences and formative influences that led to their concern, and to state what they considered to be their most significant life experiences indicating which, if any, of the years of their lives were particularly memorable in the development of responsible behavior towards the environment.

Then after conducting interviews, direct observations and follow up telephone calls with each research participants and scrutinizing all the interview transcripts, I

found that I could present the views of my research participants under various grounds. Using all these bits of information, I pieced together a picture of the research participants' notion which made me possible to answer all of my research questions which are presented below.

1. What are the elements that facilitated the process of developing REB among secondary level students?
2. What are the elements that impeded the process of developing REB among secondary level students?
3. How can school EE play its role in developing REB among our students?

My research questions were based on grounding the perspective where I'd like to scrutinize what has stunned in the daily life of research participant which's concerned with environment behavior. My curiosity lied in that they're unlikely to be involved in REB until they were guided and told to do. This is what I'd striven to explore through my research questions. If the environment related behavior was seen adopted, I tried to explore which factors had promoted them.

The statements giving details of persuading factors leading to a commitment to environmental concerns were analyzed, and the results were documented accordingly. This research keenly looked at the factors related with behavior change on the part of the research participant. This was done by reviewing all the responses in terms of grounding different aspects of motivation for behavioral change. In this chapter, I would be presenting my findings on their involvement in plantation, then household sanitation and lastly in reusing and recycling under the thematic headings based on research questions.

The task of finding answers to my research questions was undertaken firstly by presenting my findings under research themes. The following section of this

chapter is the presentation of my field findings that explored the presence or absence of REB among secondary level students and factors responsible to bring about the changes in their behaviors. I began my thinking with research themes to explore in collaboration with my research participants. First, the elements that facilitated in the process of development of REB; second, the elements that impeded in the process of development of REB; third, the role of school EE that can play in developing REB. In retrospect, I realized that underneath those questions, I was truly interested in how they develop REB and provide emerging themes that can be used in schools to teach EE.

Research Theme: Elements that Facilitated the Process of Development of REB

Under this theme, I tried to explore the elements that have helped to promote my research participants to be involved in REB. The statements giving details of influential factors leading to commitment to environmental concerns were observed. For the purpose of my research, I had chosen three types of actions under environmental sanitation that the research participants would be performing which I considered as an indicator of REB. Accordingly I had chosen the activities related to plantation, household sanitation, and waste management. At first, I would like to present my findings related with plantation.

Findings with plantation

Before presenting my research findings, I would like to put my quote:

“The beautiful flowers when I see,

The florid aroma when I smell,

The lovely petals when I touch,

I sensed them, I cherished them, and I lived with them”.

How can I forget those days of experience with my research participants! During research time, I used to look around the house, showed interest to see if any beautiful flowers or trees were grown to know whether they were involved in any greenery activities. When I found any such activities being held in the house, I asked them their input in detail. To crosscheck their self reported version, I asked the family members too. I even let them do some activities related to plantation to see whether they actually know how to do. Many times I saw them working with the plants. I used to ask them to teach me how to grow and care the plants. They used to tell me in detail. They even gave me some plants to plant in my house. I followed their instruction and now they have grown up a lot and whenever I see them, it reminds me of my research participants.

Such stunning and memorable experiences were cherished by many valued participants. Among them firstly I would like to share my experience with Nistha. Nistha was living in Kathmandu with her parents since two years and she had a strong affection with her native place and planting trees and flowers. She was found quite much involved in greenery activities. She showed me all the flowers she had grown herself. She told me all about her native place and the way she used to make her house full of greenery. She had a strong affection with her village, its fresh air, natural beauty, and natural atmosphere. Here in urban area, she missed that atmosphere but wanted to revive it with her own effort with nature. When she was asked regarding passion for her place and love for greenery, she said:

> My native place is in the village. As a child, I used to travel a lot over there with my family members, play in the garden, be at the farm - we had a farm I used to plant lots of flowers, hike in the forest. And so all these little things playing with the nature taught me a lot about seeing and loving the world

> around me. And that has stayed with me until now and is the main inspiration behind everything. I missed my place very much. So if I get help, I wish to go there, plant trees, teach community people about the importance of forestation.

Nistha's version showed that her experience with nature during childhood aroused her interest in plantation which was lauded as a critical element to develop her greenery loving person. As she was attached to the nature since early age, its effect was found to be remaining in later age too. And that early age exposure to nature had been a main source of inspiration behind being a greenery loving person. Her version also showed the affection with her village and wanted to contribute for the welfare of that place.

Similar to Nistha, the beautiful rose plant given by Narendra still remind me his interest in greenery activities. His house was full of greenery. There were lots of beautiful seasonal flowers grown and he was also found caring them. I asked Narendra that how had been his association with nature. He said:

> I came from a small village. The village is in the lap of nature. There are mighty granite rocks, thick forest, and vegetation, grazing grounds, rivulets and rivers. So, from childhood I have been close to nature and my place. My maternal grandfather was a farmer by profession and I saw how he cultivated land, and grow rice as well as paddy. I also saw different fruits being grown. Our house was with amidst trees and shrub. When I grow up I want to do something for my place.

Like Nistha, Narendra had also association with greenery activities as he was born up in village and as his grandfather was a farmer by profession, he had been much closer with natural atmosphere. As Narendra said, closeness with nature during childhood enhanced his attachment with nature and due to that he continued it. His

family members also told me that he is very fond of growing different types of seasonal flowers, vegetables, fruits and with the little pocket money he used to purchase seed of different flowers, fruits and grew them at home. After returning from school, he used to be busy watering the plants, manuring them. In the backyard of the house, there was a small space where he had grown few vegetables, cucumber. I also got the chance of eating fresh vegetables grown by him. He felt very happy in plantation. He was remembering his place and showed his desire to do something forth.

My next participant Hem, he spent most of the time in the small field in front of his house. His parents had grown lots of vegetables, onion, cucumber, few seasonal fruits and he used to help them a lot. He also showed much enthusiasm in plantation. He had grown lots of flowers around the house. When I asked him, how he got the inspiration?

Hem also put forward the same view, 'I have the hobby of planting trees, flowers. I grew up in village so I have more interest in plantation. I take good care of those plants, put manure, water'. He said:

> Beside the other factor, there is one another factor, when I saw the devastating landslide and death of my own relative; I became afraid and more sensitive to the future of our environment after that visit than I was before.

Few years back, he had witnessed a deadly experience, there occurred one environmental disaster. The landslide swept many lives including his close relative. He was touched by that incident. He learnt that barrening the land cause all these disasters. So he used to go to different greenery camps. He showed me the photographs of different camps he was involved. He also told me that in most of the camps, after plantation program, they are not taken care but he used to go there and

care them. I also got the chance to go one of the places near by village where they had made the place green, once it was a barren land.

Likewise Kishan's house was in rural area, it was amidst big trees and small forest so as he was born in such place he was also not detached with nature. He too paid attention to watering the plants, plantation of small trees (especially flowers, fruits) which could give greenery and healthy natural atmosphere. All the above research participants put the same view as they were brought up in village; they had developed affection with greenery activities.

As an observer, I accompanied with other research participant on the spot too. Ansikha's house was in the remote place, at the edge of a big forest. As I entered into the house, the trees which they planted were quite high. The house was neat and clean. In front of Ansikha's house, they had grown Tulsi plant and lots of other medicinal plants. She was quite concerned with those plants. I asked Ansikha to give me the most persuading factor for strengthening her love to those plants. She said:

> When I was small, my grandfather told me that tulsi plant is God, one should take care of it otherwise will get sin. So I used to care Tulsi as a symbol of God. Later on when I come to know its medicinal value, I had more concern with it. I have also grown lots of other plants too which have their own medicinal purpose.

Ansikha's response clearly showed that her view towards plant was much influenced by her culture and religious values she had taken by heart during childhood. Whether she will not be cursed, she seems to follow what she was told by her seniors. According to her response, it is revealed that when she was small, her mind was psychologically rooted in the relation of human beings and nature very spiritually, she

went on doing for the sake of religion too but now she came to know that it has clinical application too, her fondness with those plants amplified.

Ansikha as a follower of religious tradition tilted towards plantation due to fear of getting sin but later on it after knowing its usefulness she continued her habit. As Ansikha was the follower of Hindu philosophy, Tripi was the follower of Buddhist philosophy. Tripti was also found to be fond of planting lots of medicinal and other plants as well. In the roof she had grown lots of beautiful flowers too.

She was asked the reason behind the passion for plantation. Replying me she said:

> During childhood I used to go to Gumba. There I saw nuns and monks had grown lots of trees. One day they saw me destroying plants grown by them, they told me that I should not destruct the living things. All are nature's gift. I must love the plants and should be grown at home too. I was told by my elders that it makes our environment and our mind fresh, as well as we will achieve punya, and if not done, we will achieve paap.

During childhood, Tripti seem to be involved in the name of religion, she was told to do something, she tend to do it whether she would not be cursed. What she was told, she learnt in the way of achieving paap and punya and she said if she care for the plants, she will achieve punya otherwise it will be a pap. She had grown up lots of sisnu plant. When she came to know that it is useful for the treatment of many diseases, she started growing it and along with that she became dotted with other plants as well.

The above accounts of my research participants involvement in plantation is a remarkable indication of REB. It is important to understand that plants play the role of lungs for our beloved land. In Nepal, tree plantation and conservation is conducted by

many organizations and reported by the media. There are many afforestation programs which are reported and observed to be successful although many more languish due to lack of plantation care. Even our new government plan has announced the allocation of one person, one tree and to move towards reducing global warming. So it can be believed that the new plans will obviously think of intellectualizing the process of plantation and conservation as well as in the afforestation program exotic and local species of trees will be mandatory. Every year on June 5 Save the World observe the International Environment Day with plantation of trees and its conservation. It is said that if we have the means to plant a tree, start digging. The green plant is one of main factor for clean and pure environment for the inhabitants. Plants are natural way to purify the atmosphere and make it healthy for living ones. According to the research a country should have the forest of at least 30 percent of its land. But unfortunately the forest on the land of Nepal is decreasing day by day. The rate of pollution is kissing the sky especially the urban areas. The environment of the cities is even worse. Different diseases can also spread by this worst condition. The other areas are also suffering from the environmental pollution. Plants are the products that can reduce the alarming percentage of harmful gases in the environment. During photosynthesis, trees and other plants absorb carbon dioxide and give off oxygen. They are an integral part of the natural atmospheric exchange cycle here on Earth, but there are too few of them to fully counter the increases in carbon dioxide caused by automobile traffic, manufacturing and other human activities. A single tree will absorb approximately one ton of carbon dioxide during its lifetime. So it is asserted that there is a dire need to educate to the students about the importance of the plantation.

For the purpose of educating students it is mentioned in their textbook regarding the method for environmental sanitation as given by Karna (2005) is that the trees should be planted on nude slope of hills and barren land and they should be conserved and promoted. My participants knew that they should be involved in such activities and most of them were even found to be involved too. When I tried to dig out the influential factor for their interest towards plantation, their responses showed that their experience with nature during childhood aroused their interest in plantation. As they were attached to the nature since early age, its effect was found to be remaining in later age too. And that early age exposure to nature had been a main source of inspiration behind being a greenery loving person. Their version also showed their affection towards their native place and wanted to contribute for the welfare of that place.

Few other participants who were found to be involved in greenery activities gave their influential motive as religious factor at first and later on knowing its beneficial aspect. Those participants belong to Hindu and Buddhist family. It is true that there are several principles of importance to the human future that can be distilled from the teachings of Hinduism, and Buddhism- principles relating to the inevitability of the consequences of one's actions, the interconnectedness of all things, the harmony that is necessary between humanity and the natural order. In Hindu religion, godhood is considered to be diffused throughout the universe and nature. Divinity, according to Hindu religion, has been present all over. We worship trees, its' the conservation of forest; worship domestic animal, its' animal conservation; worship on bamboo, its' protection against soil erosion; fire worship (hom) for rain to generate condensation nuclei to atmosphere-formation of cloud and rain; river worship as goddess for river conservation. Likewise, Buddhism is also a religion that places great emphasis on

environmental protection. The wasteful consumption of natural resources and destruction of ecology are caused by humankind's psychological craving for convenience and wealth. It is asserted that if we can practice the Buddha's teaching of ‘leading a contented life with few desires’ and ‘being satisfied and therefore always happy’, and if we are willing to use our intelligence to deal with problems and engage diligently in productive work, then, without having to contend with one another or fight with nature, we can lead very happy lives. Environmental protection of their parents and grandparents were combined with their respective religious beliefs. It is crystal clear that rapid development caused by human activities have entered burning problems of the present world such as environmental pollution ,scarcity of natural resources, global warming. It can be said that the solution lies within our religious practice. But unfortunately the messages are not being passed on with understanding its scientific benefit. Through the religion, human beings have always been made conscious of their obligations and duties and provide sanctions and offer stiffer penalties such as fear of damnation, for those who do not tract God’s creation with respect. All of this traditions and practices which is so essential to bring into the thought-frames of the present generation. But because they were not taught in the sense that the cause of wrongdoing is ignorance rather than wickedness or sin. Our elders taught their young ones that if they don’t do they will get sin. However through school education when they come to know its scientific beneficial aspect behind their religious practices, they gained more insight and were more motivated to do it. The next REB I chose to find out among my research participants is their involvement in household sanitation.

Findings related with household sanitation

As a researcher, I set out my visit to my research participants' house and observed their particular behavior. I keenly watched them on their involvement in daily household sanitation; I checked them mainly on how they help their family members in keeping their house clean; helping other family members in cleaning them; I also basically observed them how much they take care of things they use in their house.

As I stepped into Nistha's house, I found it very neat and tidy. She was helping her family members in all the sanitation work. She regularly broom the house and near by places, help other family members in cleaning them; She was equally involved in other cleanliness activities such as dust the furniture, keep the wash basin, bedroom, drawing room etc clean, throw all rubbish in the dustbin, do not spread the books here and there. What I found most impressive that the way my research participant cooperating senior family members and did the things very smoothly and efficiently. Each family member was assigned to a different task, from that of her senior female family members used to start their house and surroundings neat and tidy. Other junior female family members including my research participant also helped them in making the homely environment fresh and clean.

I asked Nistha, 'Will you tell me the main factors that led you to get involved in household sanitation?' Nistha explained:

> Being the daughter of family, it's my responsibility to clean everywhere. My senior family members used to tell us that Chori manche le khana pakaune, ghar safa sughar rakhne garnu parch i.e. A female must learn to cook and clean the house. Since my childhood I am doing it.

Nistha was found to be involved in all the activities I intended to see and she did it as the instruction provided by her senior family members. She was doing it since childhood and now she took it as her own responsibility.

There is no doubt that household sanitation is a staple part of environment conservation and I was quite curious amidst my research nevertheless they had done those chores I liked to know if they'd done by pressure or own longing.

I asked, 'Will you do the same thing if you were not told by your family members'?

Nistha said:

> When I was small, may be I would not have done it. Now I already have the habit and as I have read in the book the relation between quality of life and good sanitation, now I feel good to keep everything clean and green. A house is a place to live in. A clean house looks nice and makes me feel happy and it is my responsibility also.

Nistha's reply revealed that she was doing all the household activities since childhood so that habit remained till now. When she was small she was inspired by her family members and it became her habit. I also asked her whether she had learnt in her textbooks. She said though she had learnt in the textbook and later on reading in the books motivated her to continue it. After interviewing Nistha, with a hope of finding answers to my research questions, I then stepped into Tripti's house. Tripti's house was in the heart of the city and itwa inside a small chowk. As I entered inside the chowk, there was a huge pile of garbage and I got the information, the chowk was never cleaned properly. All the households surrounding the chowk cleaned their house part only. However, as I stepped into Tripti's house, I could see the house very neat and clean. I saw beautiful flowers grown in the roof. Tripti was found to be

immensely involved in cleaning the room and house. She was also found to be involved in all the cleanliness activities as Nistha.

I then asked her the chief intention in cleaning her house and the chowk.
She stated,' Keeping environment and surrounding neat pleases me as well as my family as well. This made me the habit of doing it since childhood.'

Her reply also showed similar expression as of Nistha so I was then curious to know whether she did it for the sake of family and she herself didn't like to do it. So amidst my research, I had asked a question, 'Will you have to do such chores if not instructed by senior family members?'
She said:

> Frankly saying previously I have started doing it because I was taught by my family members. To make them happy I do it although it disturbs my study time. Now I do it for our own health because I have seen my brother became so ill once due to piles of garbage in front of our house.

Tripti was found to be involved in all the cleanliness activities as I mentioned above for two reasons. One she was instructed by her family members when she was small and so she did it to delight her family members. Secondly now as she understood its' importance and she did it for the sake of health of family. She is afraid of the incidence once occurred when her brother became ill due to poor environmental condition which was shown by response given below.

I asked Tripti, 'How do you come to know that good sanitation prevents us from diseases?'
She said, 'When my brother became ill, doctor told me that it was due to garbage and I have read it in books too'.
I then asked her, 'Though you have read in books, why you didn't clean before?

She replied, ‘It is human nature, unless something struck in our mind or something inspires us to do it, we don’t imply it though we know it’.

So Tripti’s response showed that though she had knowledge that poor environmental condition is bad for health, she neglected it unless her brother suffered from it.

My other female research participant Ansikha also had a similar explanation as that of Nistha. She was also bound to responsibility towards her house. She had maintained the cleanliness of house properly. She also replied in the same manner as Nistha. She also said when asked whether she would be involved in those sanitation activities if not told by family members.

Ansikha said, ‘Of course, why not? I also feel good. I am doing it since childhood and now it is my responsibility too”.

I then asked, ‘Did you read in books?’

She said, ‘Yes, that is why I like to do it more.’

Like Nistha, Ansikha also took it as her responsibility and because she had read in books too, the importance of good sanitation and hygiene, she liked to continue it.

I asked, ‘You have read in books only now, if you hadn’t done before,

Would you do it now?

She replied, ‘In that case, may be not so much because as soon as I read in

books, I wouldn’t hurriedly go to do it. I need support, time.

Ansikha said that it was bit difficult to imply theory into practice as soon as you read in book. It needs time, support, knowledge to do it. According to her also as all the activities would start only after brooming the house only, she was bound to do it and took as her responsibility too.

Albeit Hem who was not encouraged by the family retain the surrounding neat, clean, tidy and green, got the information through media, the reason to keep outside charming and enchanting.

When asked Hem, this was how he explained:

> I know that quality of life can be perfect with good sanitation. Sanitation keeps environment pure and green. I clean house much. I have the habit of doing that though nobody tells me to do it. In the school, since childhood they have a system, our teacher tells us to broom our room after lunch period. We used to get that work as per the schedule. In environment day, school took us to collect plastic and garbage and tell people not to throw waste on the road.

I asked, 'How do you have inspiration to do it?'

Hem said:

> I had read it in books also but I am much inspired by TV when I was small I saw in that program that how much it is beneficial for us to keep good sanitation and what will happen if we don't do it.

I asked, 'Why were you more impressed by TV program than textbook?

He replied, 'From textbook, I read it only but by TV I saw it, I understood it more clearly.'

It had become his habit to do by himself and he thought it was his responsibility to make environment clean and tidy as a responsible member of that house. It is obvious that the more population grows, the greater amount of air, water, land, and surrounding natural resources are exploited. So adequate environmental sanitation is required for the protection from refuse and pollution. So it is recommended that sanitation program should be initiated from our own houses. An environmental sanitation campaign is essential in every village, town and districts. Only then, our

surrounding places will be clean and fresh. The first important method employed as given in EE textbook of Nepalese curriculum which is helpful for environmental sanitation also recommended that houses should be kept clean that is there should be proper household sanitation (Karna, 2005). A dwelling house is one of the important basic needs of human being. A clean house has positive effects on a person's health, productivity, standard of living and mental status. As given by Shakya (2009), all those activities of household cleanliness is related with environmental sanitation such as house cleaning during festival-Cleanliness; House cleaning by cow dung-cleanliness, free from bacteria; morning house clean- in morning generally stable atmosphere thus less dust suspension in air. The environment is not limited for human beings so it is also called external or macro environment. This includes all of human being's external surroundings such as air, water, housing etc. Environment of human beings can be divided into three components as physical environment, biological environment and psychosocial environment. Poor housing, poor disposal and pollution are the examples of physical environment. Lack of proper sanitation and proper disposal of waste are the causes of different kinds of pollution and causes bad effects in our health. When my participants got involved in household sanitation, they didn't know much of its scientific value. As they said, they did it because their elders let them do it and one of the participants also mentioned the school practice. So the responsible motives they mention belong to instruction given by their family members as well as school when they were small. Those then made them feel responsible for that particular task. The participant also mentioned the family health as one of the cause for the contribution towards sanitary action. It was clear from their responses that whether they got involved due to family, school or media, they did it as they felt its compulsion for them to do.

Findings related to waste management

Now moving towards the reusing waste, I would like to present my findings on Bishal's response. Among all the research participants, Bishal was found to be involved in reusing and recycling of the waste plastic bottles and newspapers. Bishal was living in rented house. He had neither maintained his room's cleanliness nor the surrounding area. He was studying in public school, belongs to uneducated family. He was not much sensitive to cleanliness, plantation but had interest in collecting all the plastic materials and newspapers.

I then became very curious about his eco friendly nature in this particular matter and asked him how he started to do that, replying to me, he said, 'I come to know from a person that I can earn some money by selling the collected plastics, and then I started collecting it. And now I am the active member of recycling and reusing centre of my community'.

Reusing waste is one of the important REBs shown by research participant. We should realize that household wastes in a densely populated and very rapidly urbanized cities produces thousands of tons of wastes everyday. Categorizing wastes produced from households can significantly reduce the bulk of volume of wastes since household produce majority of organic wastes which is biodegradable and non biodegradable. Wastes like metals and plastics, newspaper collected separately can have resale value and can be recycled or reused which can reduce the burning problem of global warming too. My research participant was also taking benefit by selling the waste. Previously he started only with the advantage of getting economic gain but later on he continued it knowing its environmental values too.

So this research questions tried to explore the process of their involvement in plantation, household sanitation and reusing waste which wais used to generate

themes regarding the development of REB. My next research question will help me in generating theme by exploring the facts about elements that are impeding the process.

Research Theme: Elements that Impeded Process of Development of REB

The former research theme discussed the elements that facilitated for generating REB among my research participants. I collected the responses of those research participants who were found to be involved in particular actions. Now this research theme tried to dig out the impeding elements in the development of REB and it was a collection of responses taken from those research participants who were not doing those activities.

Findings related with plantation

During research, I observed that research participants grown up in city were found to have less emotional attachment to nature since they'd less cling with nature. One of the research participant said, 'Since we were born in city, we had less chance to cling with nature, so we need to learn necessarily more such knowledge at school than children born in the village. Unfortunately, we did not get opportunity to get exposed to greenery activities even through school.'

My another research participant Benisa's house was in the middle of the city. Her house was surrounded with lots of flower around the house and in the backyard. But she was not much involved in plantation. Though her family was also a religious family, she was not found to be involved in any kind of activities in the name of religion because she said she was not told by anyone to do it neither religiously nor as a compulsion. So she didn't have any fear of being cursed and she did not have practice it so even after knowing from school education, she was not motivated to do it.

I asked, 'You have read in book, couldn't it inspired you?'

She said, ‘Yes, but reading in book can’t inspire someone to do it.’

I then asked, ‘What became the barrier for you to develop REB?’

She said, ‘It is true that I was not motivated through home but even school education couldn’t motivate me. The teacher taught us only in theoretical way. I also read it only to pass exam. I never felt serious about it’.

I noticed that research participants regardless of type of school had different sets of concern based upon the different social norms they live in and the sense of responsibility given to them. For instance, my research participant Anuras who belonged to a well educated family. He was studying in a well reputed urban based private school. As I entered his house, I found it very tidy surrounded with colourful flowers and fruit trees, the garbage were segregated in different buckets, plastics and papers were placed nicely for reuse, rain water harvesting system was installed. The whole environment of house seem very eco-friendly. I was myself overjoyed expecting that this was due to Anuras’s enormous effort. But my joy didn’t remain for longer as soon as I come to know that Anuras had very less or say negligible effort in all of the above eco friendly tasks. He didn’t like to get involved in cleaning the house too. Most of the time he seemed spending in front of the computer.

I asked him, ‘Why didn’t you take part in activities such as brooming, dusting and other cleanliness activities?

He said:

> I can clean my house and do little bit also but in the house I have my mother and sisters who will do that work. My father also never does such work. I don’t have the habit of doing?

I asked, ‘You must have learnt that keeping clean is important, then why didn’t you do yourself?

He said, ‘I had learnt in textbook but I am never told to do it.’

I then asked, ‘Don’t you think that it’s your responsibility to do it if they don’t tell you also’

He replied’ Yes, but since I am not doing it since before, so I…….’

Anuras’s response showed that though he knew that it was necessary to do, but because he was not doing since before nor he was motivated to do, he was not showing ample interest in it now in spite of knowing its importance. Anuras’s response explored one awful truth that he contributed much less in household sanitation. His involvement in such tasks was found to be very occasional.

It was also seen that the younger generation imitate others as Anuras said his father also did not do it. Like Anuras, Kishan, Bibhav and Narendra also showed similar type of response.

Kishan answered, “ It’s our family tradition that it is not compulsory for male person to do activities such as brooming, dusting…”

When I asked Narendra, ‘Why the things of your bedroom all are scattered?’

He said, ‘I am waiting for my mum to do it’

I asked, ‘can’t you do it yourself as you are an educated boy?’.

He was silent for a while and with feeling somehow odd, he went to do it.

Likewise Bibhav also said, “May be because I am grown up in such situation, I don’t feel like doing such things much and though I was taught in school, I was not motivated to do it.”

Another research participant, Bishal though living alone has not maintained properly his room. He cleaned it very occasionally, so his room was very dirty. Though its compulsion for him to do, he didn’t do it according to his wish. I asked

him whether he was doing it before. He said, ‘No’. Now because he didn’t have habit, he felt lazy to do it and until he felt it’s very dirty, he would did it.

As I am giving examples of male participants only, may be the reader might think as a case of gender bias, yes, it is in some respect true but I saw the same situation in female participant also if they are not told to do, they will not do like Benisha was also not found to be involved in any type of household sanitation.

Regarding waste management, reusing and recycling, except Bishal, none of the research participants were found to be involved in those tasks. The students were asked to give some environmental conservation activities they were involved such as recycling, reusing, and reducing of non renewable resources or management practices of waste. In reply to my question, none of them were serious about this matter. When I pointed them to tell me some ways they could behave everyday regarding recycling and reusing such as reuse bottles and jars, take own bags for shopping, have newspapers, bottles and /cans reused. Most of the students replied no. Even I didn’t see them doing that.

Nistha never collected paper, plastics and sold it. In the shop, she never took bag for shopping. She was using plastic bags frequently although she had learnt about recycling and reusing of non renewable resources. This was because she had the habit of using it from the past and no one in the family or in the school had forced her to abandon the use of plastic bags.

When I asked Nistha, she said,’hh...mm…I know about these things but I have not done yet’

I asked ‘why?’ she said ‘It’s not taken seriously yet’.

Like Tripti also had similar response, I asked her, ‘Have you done some other things which you can do yourself to help solve environmental pollution or preservation of natural resources?’

She was silent. I asked her whether she belong to any waste management club or any similar organization, she said no.

Tripti was also not found to be involved in any recycling and reusing activities. I asked her, ‘what do you think the reason for not able to do though you know it’s important?’

She answered, ‘No one in my family seems serious in this matter and inspired me to do it’. Tripti’s response revealed the fact that she knows that recycling and reusing waste materials is important to do but she lack inspiration and motivation to do it.

I asked Hem also that reason of being so nature friendly person, why in this part he was so much ignorant, he pointed out the most prominent factor that is ignorant about the information required to do such activities and not yet considered an important topic in his circle. As my research participant explained, even though she had the right knowledge and attitude, she felt ignorant about what to do or unable to do anything that would help to improve the situation, as an example, Benisa expressed her feeling in the following words: ‘I know recycling and reusing is beneficial to the environment because fewer natural resources are wasted. But I don’t know what to do and how to do’.

Let’s check another example of Kishan, Kishan’s father owned a small grocery shop. I asked, ‘Why didn’t you do it?’

Kishan said, ‘How to do it, it’s very difficult to do it and customers will be angry and it’s very time consuming. They don’t bring their own bag too’

Like Kishan, Bibhav also put the same view. He also said, ‘How to do, they will be angry.’

I asked, ‘Can’t you convince them?’

He said, ‘If I start doing that they will go to another shop’.

So it showed though he wanted to do, but because he doesn’t want his customers to leave his shop, he refrains from doing it. He also stayed there but he had not changed his habit of using plastics. He gave plastic bags to the entire customer. He said customers got angry when he did not give plastic bags and he didn’t even get time to convince them.

I asked Nistha, ‘Who is responsible for protecting environment, is it government or the individual?’ She said both are equally responsible. Answering to my question that who is more responsible, she said government. The research participants regard each of the environmental programs as good or worthy of participation, but do not participate in all of them. In general, explanations for a lack of participation can be framed as one of the following statements given by the research participant, ‘Environmental enhancement is generally a desirable goal, but one person may feel insignificant in terms of being able to affect the environment in a positive manner. One person can’t make much of a difference’.

Narendra, as he explained:

> I know much about environmental conservation but I don't have time and I don't have much inspiration from the society, neither from the school nor from the family. It is the government and community people’s responsibility to make us habit to do.

I then asked Anuras whether he was involved in any of environmental actions outside the house or he was taken by the school, he said:

> ……No, I have never gone anywhere. I don't know where to go and how to go. Actually I don't have time also and I don't think I alone can do something. It's the responsibility of local community and government.

Though the house was clean, the chowk was very dirty and the garbage was thrown here and there. So Tripiti was asked whether she tried to clean the chowk. She replied:

> No……I am not so much grown up to tell them, they will not listen to me. It's true I also feel myself that the whole chowk has to be neat and clean. In my place, you can see, Mam, isn't it clean? Why should I bother the whole place?

Most of my research participants were not found to collect the wastes in separate categories; non biodegradable wastes were also thrown collectively in the municipal waste collection containers. Almost all houses produce wastes with significant proportion of plastics. Although they were aware of the fact that plastics cause significant pollution and harm to the environment, sometimes they burnt the plastics though they know that burning plastics produces an environmental hazard. People use various resources and means of the environment to meet their requirements. The utilization of natural resources goes on increasing according to population growth and their needs. The above responses showed that though they know it is important to do but because they were not forced to do, they didn't take it as their responsibility to do it and as they didn't practice it since childhood, they didn't even feel like doing it. It shows that they support the notion of doing for the environment but view the act of engaging in such type of work with less importance and hence refrain from doing this. So the motivation with which a person perceives a proposed behavior, will also impact on whether the person will actually engage in that behavior or not. Most of the students' response such as 'they were not told to do' shows that barriers in performing

the behaviors such as lack of proper teaching methodology in our own education system impedes my research participants' environmental behaviors.

With the accounts obtained through the research participants, the responses were coded and below are an overview of grounding the theory through axial and selective coding.

An Overview of a Grounded Theory of Plantation

Below is the process of an analytical flow beginning with the relation of a casual condition to a phenomenon. Phenomenon is then related to context, which identified specific features of each phenomenon. Strategies employed to respond with specific phenomenon are listed under action. The process concluded with consequences which is the result of action. First process in axial coding is identification of causal condition and phenomenon of that casual condition. Table 2, 3 & 4 presents casual condition and phenomenon identified during axial coding process of this strategy.

Table 2.

Casual Condition and Phenomenon of Plantation

Casual Condition	Phenomenon
Family Education	Attachment with nature
	Religious practices
Self Education	Witnessed disaster
School Education	Gain more insight

Table 3.

Casual Condition and Phenomenon of Household Sanitation

Casual Condition	Phenomenon

Family Education	Habit
	Sense of responsibility
Self Education	Witnessed risk
School Education	Gain more insight

Table 4.

Casual Condition and Phenomenon of Reusing Waste

Casual Condition	Phenomenon
Self Education	Habit
School Education	Gain more insight

To better understand the analysis that has taken place so far in axial coding process, each phenomenon and context of that phenomenon is presented in table. Following the table 5, 6 & 7 for each phenomenon is context of the phenomenon and features of each context. The features of each context are action and consequences. Phenomenon has emerged from synthesis of following contexts.

Table 5.

Phenomenon in Context Plantation

Phenomenon	Context
Attachment with nature	Grown up in village
	Family profession
	Doing it since early years
Religious practices	Religious belief
Witnessed disaster	Death of relative due to landslide
Gain more insight	Taught the beneficial aspect of plantation

Table 6.

Phenomenon in Context Household Sanitation

Phenomenon	Context

Habit/	Sense of responsibility	Doing regularly since early years
Witnessed risk		Illness
Gain more insight		Taught the beneficial aspect of household sanitation

Table 7.

Phenomenon in context Reusing Waste

Phenomenon	Context
Habit	Doing regularly for economic benefit
Gain more insight	Taught the beneficial aspect of waste management

In action strategies, participants had an experience of greenery activities since early years in their native place, were taught to plant plants related to religious belief since early years of life by their elders in the family, perceived the risk of environmental degradation and get involved in greenery activities, were motivated by knowing the beneficial aspect of plantation and the consequence is that participants did plantation, household sanitation, reusing waste.

This concluded axial coding process. This process identified casual condition that led to development of each phenomenon. During axial coding process, origin to categories each emerged as phenomenon. Each category emerged as phenomenon because it is central idea to which a set of actions is related. As axial coding process concluded, data segments were examined with another level of specificity in an effect to reveal what was originally not evident.

Building upon microanalysis of axial coding process, data is examined in a more macro approach during selective coding process. Selective coding process offered a holistic view of phenomenon and their properties.

The research theme one cleared out the factors functioning over REB among my research participants. If we do observe every student's response separately, we can transparently witness how the role of school EE has come or not upon students. It

is to remind all the readers that the ultimate role of EE is to develop REB among the learners.

Nistha's reply revealed that she learnt through school education that environment should be retained neat and clean. However she started it due to family and later on teaching of school education let her to continue. My observation illuminated that learning from her home she did deeds like household sanitation, trees planting and imparting knowledge concerned with it. It does strongly display that when there's a will, there is a way. One question I asked her if there were not family pressure and self satisfaction, would she have undergone? With a smile, being ashamed she answered, 'may be not'. I again asked, why?' She answered that simply teacher's preaching did not manipulate to show interest in her. Albeit know right or wrong, it's very difficult and far-fetching to turn it into practice and reality. It's realizes through her remarks that school education hasn't motivated to ape any task in the initiation stage.

Like Nistha, Tripti and Ansikha also replied in a similar fashion. I asked Ansikha, 'If you were not in the habit of plantation before, would you have done it now after knowing from the school education?'

Ansikha replied after thinking little bit said:

> Not sure, I am doing it since childhood so now it has been
> my habit. At that time I did it because it was the concept given
> that if we don't do it, we will get sin but now it is also understood
> that it is really useful scientifically.

My findings have shown that Nistha, Tripiti and Anisikha, they did in response to a broader pressure from the family, religious beliefs or for personal satisfaction from initiation. There had been a great role of family to make them so;

since their childhood they were involved in all the household sanitation work. Moreover, they were constantly inspired by their senior family members. They've done task not due to teacher's guidance. However, school education seems to have inspired them what's done right, ought to be continued. They remark if fail in exam they can't get rid of it. Taking their responses into consideration, it's apparent that students are merely oriented to pass their exams rather than achieving knowledge.

Nistha said, 'Frankly saying if I was not doing from before, school education would not have motivated so much for me to do so'.

Hem put forward his view:

> I was doing it due to my own self interest since before and later on when I read in book, I come to know that it is beneficial, I became more interested. Teacher teach in school but just lecture method, it used to be very boring, nothing much gets into my mind but when I watched in TV program, I became .much interested.

Anuras said:

> I read in book that plantation is important; teacher also told me but couldn't motivate us to do in practical sense. They used to say,' Plantation is important, you have to plant trees O.K. Only saying that cannot make a person do it'.

Kishan, 'I know it everything but my purpose used to get good marks and I think everyone will be happy too'.

Regarding household sanitation, the research participants who were neither under family pressure nor do they show interest themselves, nor could they adopt as their teachers motivate. This shows that school education couldn't work as motivator to change a person's habit. Let's discuss according to gender. ? In case of Hem, media

could teach and convince him faster than school education. In this sense, media became quite more effective. However, formal education seems to have helped to supplement things taught on media.

I also got to know that it's quite relevant to bring behavior change since early age through the practice. If a person's behavior can't be driven for a change precisely, the motive of formal education seems to be incomplete. One of the research participants said:

> Albeit, we long to do so, we have no idea about it and nor are we taught at school. We are taught and know that non biodegradable stuff can be recycled and have to be reused but the problem here is we are never taught how to do it so we don't know.

The students said that there're abundant project work in our text book, but my teacher never tells us to do those activities. Through example, it's apparent that they're unable to go beyond due to lack of skill. School education does have a big role to develop skill which if found not fulfilled.

It is obvious that school provides a basis for developing environmentally responsible behavior. It solely depends upon the teaching methodology teacher adopt to teach EE in school. Teaching strategies depends on teacher. Students were asked in the interview, 'How did your teacher teach EE in your school?' followed by, 'Whether your teacher use any educational materials to teach EE?' Specific strategies described by students fell into only one category. All the research participants illustrated the reality, 'My teacher use lecture method only. Activities in the book were never told us to do. I could grasp things more easily through practical method'. The student who is studying in well reputed school said:

> Previously we were taught in lecture method only by one teacher so I learnt little bit only. Next teacher used demonstration method by which I come to know more easily.

His reply revealed that he has seen the difference in two types of classroom delivery system in which he preferred demonstration method as more useful than lecture method.

Tripti shared her view, 'Due to large number of students in my school, school is not able to teach EE in practical way'.

She further stated:

> We can only learn better if we were shown how to do it. I learnt many things from EE but whatever environment related thing I am doing now is not because of EE but from family practice. However school education has supplemented to continue my habit.

Tripti put her view that her teacher is not able to able to teach EE in practical way. She could benefit only supplementary role from school education.

The Educational mandate to include the EE as one of the subjects in the curriculum of Nepalese school education system represents a tremendous opportunity to develop the concepts and actions needed for environmental management and conservation in the next generation. These students are the Nepal's environmental managers of the next decade. Forming sustainable environmental management in knowledge, attitudes, and practices within school children will be the critical to the creation of the critical mass of people necessary to make a real, significant impact on the environmental management for sustained economic growth.

No doubt EE course offers a heap of heavy knowledge which will surely make them environmentally knowledgeable citizens. All the interviewed students also

alleged that school education (text books) as opposed to knowledge acquired from other sources was the most significant way in which they had adopted REB. However we know that the ultimate aim of EE is developing REB and promoting REB requires changing human attitudes and linking them to participation so the participatory action is the desired outcome. So what could be the suggestions for improving our EE to meet its ultimate goal?

As Nistha replied to my question about some incidence she remembers about EE in school:

> From the initiation, I was terribly interested in plantation indeed. But one thing I've recalled that is, once we were taken to lagan for teaching about plantation where people learnt showing ample interest. Seeing it, albeit I was not taken by school, I went there frequently and teach other people.

She also said that such type of activity was done only once. It should be done at frequent times. Nistha said that because she was taken to lagan to teach in course of outdoor activities and because of that she got inspiration to teach others.

Ansikha said'Once we were shown the procedure of making fertilizer which I've recollected till now. Perhaps we have forgotten if we had just read in book.'

The students can remember practical aspect even after class. It shows, to some extent, the method applied by teachers in school to teach such a practical oriented subject.

Tripti said,' we can care for environment in an educational setting that allows us to experience things I would never get the privilege of experiencing otherwise'

With respect to EE, Anuras had the following comments to make:

> I feel that the EE course for school children should be local specific, practical and activity based. EE had to be something more than general knowledge and had to address the current issues. There has been an effort to

> incorporate environmental topics into the existing curriculum. However, this is not entirely satisfactory. We don't have any such programs. For example, deforestation is cited as a major problem and we are advised to plant more trees. However, this advice is somewhat simplistic. Where to plant? What species? Where will the seeds be obtained? How will they be protected? Our teachers never encourage us to get involved in environmental actions.

Benisha put her view:

> I think we should make the habit from the beginning. If we don't do before later on we feel lazy. Then though we come to know that it should be done we don't feel like doing. So in the school if the teacher let us do it, we will get that habit.'

Likewise Narendra also put his view, 'I suggest that our parents and teachers should let us do since childhood, not with pressure but according to our capacity'.

Kishan replied, 'I suggest that not only at home, in the school also if we were made the habit of sanitary action, we will practice it later on too in our whole life'.

Hem said, 'I also suggest that if we feel fear of harmful aspect behind not doing that also we can get into that action'.

Bibhav, 'In my opinion, the school system should not tell the students only that we should be clean, they should teach us how to do it strictly'.

Bishal, 'As you said, I didn't do much household sanitation at home, I don't blame solely to my parents. It is the defect in our education system that they don't teach us to do in real life too'.

Narendra put his view:

> After our conservation, I realized that if I were told to do since childhood, most probably I would have done it. It is our habit that unless we are not told to do with little pressure or we don't take it seriously be heart, we don't do it ourselves.

Bishal suggested:

> It is our culture regarding the responsibilities of work given to us at home. I suggest that we should be taught at school about the negative aspect of our culture so that we can change ourselves.

Hem, 'As I got the beneficial aspect from TV, the school education can also provide such type of facilities so we can see it and learn it more precisely'. Regarding waste management, one of the participants said:

> It is absolutely true that I was careless about waste management but all is not my fault too. It is never practiced at home so I suggest that apart from home, we should make the practice at school. As an example, if in school, if they could stop all the students to bring plastic bags, plastic water bottles, collect them if seen and put in separate bin. We should be motivated and inspired to do it. We should be taught how to do it and make us feel that it should be done.

Bishal said, 'I feel little bit difficulty in doing it. It's difficult to convince them. I also never took it seriously. If in school we were taught to deal with these problems, it would be useful for me'.

The students remarked that school did not do such outdoor education campaign frequently. So she suggested that such type of activities is very beneficial to get into environmental conservation activities. If a single campaign could have such a beneficial impact in the children, we can imagine that how much beneficial would be if school system can provide similar type of campaign at frequent times.

Because what they do themselves has shown more impact in them. Thus, according to students' responses, school didn't provide the facilities the way they ought to. The way they have to guide and teach students is found to be weak at implication level. EE is an action oriented subject which should be dealt along with practical classes. On the contrary, whether school is private or public, the same lecture method was merely found to have been employed. Through their responses it's obvious that students better fathom and recall practical class and its ideas rather than lecture in the class. Beside that the student also put forward their view that the way they are taught in the school, they don't feel compulsion to do it. They don't seem to be serious about the issues. It is possible to explore the possibilities of building up a situation where individual capabilities of assistance and participation can be found to intervene positively.

Chapter Summary

This chapter captures the field findings from ten research participants which were analyzed by coding technique under grounded theory methodology. The research findings indicated the elements that facilitated as well as impeded the process of development of REB. After presenting my field findings, I advance to the next stage of the research where I presented a discussion of my topic with emerging themes behind the development of REB.

CHAPTER VI

DISCUSSION: THEORIZING THE RESEARCH THEMES

In the previous chapter, I offered research participants' response what I extracted from them. My intent in this chapter is to offer a discussion of their response with emerging theories and through the lens of different behavioral theories. I have presented my thematic findings by drawing out from the accounts of the research participants, the underlying components and their lively experiences I order to show the links of the themes generated with their basic structure.

By inspecting and analyzing the transcripts of all ten research participants, I was able to texturally describe the motives behind the motives for REB. From the citizenry commitment point of view, the citizen has responsibilities for the environmental protection and they should be aware of the natural environment in which they live. If they feel responsible, they will take precaution before the problem has occurred and when they come across with any environmental problem, they will think on these problems analytically and critically and then come up with alternative solutions so as to deal with them.

A cursory review of the studies reveals that sense of responsibility encompasses the recognition of, the internalizing of responsibility for, and the willingness to saddle environmental problems and issues (Gigliotti, 1990). The initiative behind social responsibility is helping youth develop basic social skills, a sense of connection with their surrounding and the confidence to make a difference in the world. The sense of responsibility in an individual is the initiation behind any kind of behavioral change. The environment deserves our respect and responsibility towards it. To make someone responsible, several motives play a great role. The

motives for arousing a sense of responsibility among my research participants by this study are categorized under three types of main themes and its sub themes.

Theme One- Nature Experience /Place Attachment

In developing REB, nature experience has aroused as a collaborative approach in developing a sense of responsibility which will in turn makes an individual to behave in a responsible manner in the favor of the environment and environmental conservation.

As presented in the previous chapter, as an observer, I had accompanied with all of my research participants on the spot too. During my observation I was overjoyed with the way Nistha paid attention to watering the plants, plantation, replacement of small trees (especially flowers, fruits) which could give greenery and healthy natural atmosphere. She was grown up in the village and according to her response; she got the chance of growing up with the natural environment. As she was much exposed to nature during childhood and now although she is away from the similar type of natural environment and now living in urbanized area, she still has the reflection of nature adoring individuality which is reflected by the way she is devoted in greenery activities in this age too. Her response demonstrated her nature loving personality influenced largely by her nature experience during early years. So I found through my study that attachment with the nature would reduce an individual perceived separation between self and nature, which would in turn lead to an increased concern for the environment. It seems that because she was more attached with the natural surroundings, she developed a sense of connection herself with the natural environment. Such a sense of connection with the nature became a motivating factor for developing behavior favorable for the environment as well as the people themselves. As REB comprises the component of concern for the environment, nature

experience can undoubtedly increase a concern for the environment. From this, one can infer that such an increased concern for the environment may be a positive step towards engaging in REB on the part of the learner.

Based upon the results of studying, another example extracted from Nistha's response also revealed that action taken by an individual is affected by participation in natural environment. When Nistha was taken outside to a natural setting by school as outdoor education program in the course of EE, it increased her attachment with natural environment, her knowledge of local environment concepts and issues also increased her knowledge on how to deal with local issues, felt positive to take action on environmental issues, increased positive attitude towards environment. These types of programs encourage the individual to participate in all the aspect of action. Now Nistha frequently goes to that place and teach the people. So it also helped at disseminating the understanding of environmental values to others. From the response of Nistha, I sensed the flavor of place attachment. As she is frequently visiting the place where her school took her in the course of outdoor education, she became more emotionally involved with that place and became more passionate for that place. By providing opportunities for the participation to observe, to sense and to experience the environment the theoretical information that she gained during study was connected with the actual environmental settings. Hence the study revealed that participation in natural setting allows increase interest towards the nature stimulated learning about environmental issues which in turn motivates individuals to take REB. The sense-of-place in Nistha's mind has shown to inspire them to develop, and act upon, connections with places. Our research participant's response demonstrated her nature loving personality influenced largely by her frequent visit to that place.

Similar to Nistha, Narendra also established the connection of his greenery activities with his childhood experience of attachment with natural surroundings. He was also grown up in village; his father was a farmer by profession so the whole family was more in touch with the nature and natural things. His interview account showed that he had positive outlook towards environment due to father's agriculture profession. Having father involved in agricultural profession, he got the opportunity to attach with nature. Beside Narendra, the basis of Kishan and Hem' fondness towards plantation was also revealed as their early years of familiarity with natural atmosphere.

In contrast to above research participants, research participants grown up in city were found to have less emotional attachment to nature. Their responses revealed the fact that since they've less cling with natural surroundings, their involvement is also relatively less. We can say from this study that nature experiences helps foster better relationships between people and nature, people and society, and people themselves. Active participation in nature activities thereby enhances our visions of and approaches to alternative lifestyles more rooted to local communities and increases the quality of our society. Undoubtedly humankind can co-exist with the sound environment when they think themselves as an intrinsic part of nature. The feeling of belongings and a deep sense of attachment toward nature can make human beings near to the environment. When the people change their attitude in terms of 'using' nature, their behavior can be shaped according to their attitude.

Those students grown in the village are found to be more conscious and sensitive towards environment because of their involvement in nature. They have followed beautiful enchanting surrounding where they've walked and wandered. . Regarding plantation, to establish harmonious relation with nature, they are always

ready. They told that they had an emotional attachment of the place where they were born and they are keen to go beyond it. It helps them understand a lesson taught at school. If their childhood reminiscences did not bring sense, perhaps, school education would not have differentiated in their behavior. If we could bring behavior change, taking help from formal education for research participants dwelling in the city, the role of formal education would have been extremely high. To make familiar to nature, the students can be taken to frequent nature. This trend is less found which is shown by responses of students. According to them, students are driven to green surroundings occasionally which are not enough as far as environment education is concerned.

My study explored nature experience and place attachment as one of the powerful driving force for developing REB. Several researchers had also found an association between REB and involvement in outdoor activities. Similar to my research, other researchers have also specifically examined the interplay between place attachment and REB. Such as Kobrin and Vaske (2001) as cited in Ardoin (2004), when considering the place attachment and its effect in specific environmental behavior, found positive relationship between place attachment and specific environmental behavior. They operationalise place attachment as place dependence which refers to a functional attachment to a specific place and place identity which refers to an emotional attachment to the specific place. According to them a person will engage in REB towards a place (natural setting) if they have emotionally meaningful ties to the place. Cantrill's psychological research (1998) also indicated that a strong place attachment played a key role in determining whether individuals became involved in local advocacy efforts. Likewise Kruger and Shannon (2000) as cited in Ardoin (2004) asserted that citizens with a high level of place-related

knowledge seem to grasp the opportunity to create knowledge, benefits, and new opportunities for social action. The place-based education nested within the appropriate social, political, psychological, biophysical, and cultural context helps provide the context, motivation, and ongoing network necessary for environmental behavior.

Several other environmentalists have also linked the possession of a strong place attachment with the undertaking of REBs. The theory follows the reasoning that, 'People who know a place may come to care about it more deeply and people who care about a place are more likely to take better care of it' (Ardoin, 2004). As described by Cross (2001) as cited in Ardoin (2004), people connect to places through the lens of relationships based on a variety of typology such as biographical relationship is proceeded by being born in and living in a place and forms a historical and familial bond; spiritual relationship is developed through a feeling of a sense of belonging making an emotional and intangible bond; ideological relationship is ensued by living according to moral guidelines for human responsibility to a place shaping moral and ethical bond; commodified relationship is advanced through choosing a place based on list of desirable traits outlining a cognitive bond, and dependent relationship is carried out through constrained by lack of choice structuring a material bond. These varieties of relationships and bonds may shed light on to recognize the array of ways in which people value and connect with their places.

It showed that besides, spiritual feelings of the people, place or location of dwelling was playing a vital role to protect and love the nature. As Emmons (1997) and Schultz (2000) as cited in Ardoin (2004) said, learning preferably occurs in a non-formal experiential setting. As Hay (1998) said, lengthy associations with particular

places provide the opportunity for people to develop a self-concept that is strongly related to interactions with a particular setting.

As is suggested by my study and other related research linking place attachment with willingness to take action to conserve that place, place attachment have an impact on environmental conservation actions. Therefore, place attachment can be quoted as a core concept in achieving EE's end result of an informed citizenry that takes action on behalf of the environment. It has arisen from an emotional plea to reconnect to the land, to become rooted, and to conserve our natural places. Recognizing the importance of the place attachment, we can develop EE programs that relate people to places through a range of relationships and on a variety of dimensions. Educational programs that develop and strengthen place relationships, and that provide a shared, supportive community for taking action, may be central to creating a well-educated, concerned, and motivated citizenry.

Linking with the nature experience and place attachment as a motivating factor generating REB, outdoor education can be directed more attention to environmental action activities that develop REB. Since the outdoor education is blended with aspects of nature experience, it creates a relationship between human beings and nature. Such education has due stress on practical activities and first-hand experience. It influences an individual to interpret their outdoor experiences in a manner that creates awareness and concern about the environment and causes them to manifest that concern in their actual behavior. Outdoor activities can create an initial sensitivity toward the environment, the first and essential step on the path toward increased understanding of environmental processes, increased understanding of our place in, and dependence upon the ecosystem, and our action on behalf of the environment. My finding showed that environmental responsibility is best developed

outdoors. Involvement in outdoor activities stimulates interest in the outdoors, which in turn motivates students to learn about the natural environment.

Several researchers had also affirmed the conviction that vital environmental learning takes place outside the classroom (Ford & Blanchard, 1993). Fox and Lautt (1996) as cited in Kathy and Yerkes (1997) also pointed out that outdoor education, outdoor recreation, EE, and experiential education share common ground--the values of respect, social responsibility, self-actualization, justice, and freedom for all living beings and the earth. Many approaches to EE occur within the realm of outdoor education where the students are often blended with aspects of adventure education to create an experiential process of learning, taking place primarily in the out of door that emphasizes relationships concerning people and nature (Priest, 1986). Such approaches answer well to the charges of the Tbilisi Declaration (1978), which has helped direct the course of EE with goals such as creating new patterns of behavior of individuals, groups and society as a whole towards the environment and guiding principles such as utilizing diverse learning environments and approaches to teaching, learning about and from the environment with due stress on practical activities and first -hand experience. Toward creating a sustainable society, which is one of the most emerging global challenges, we have to commit ourselves to taking an initiative for promoting a variety of EE practices whose purpose is to provide opportunities for younger generations to experience the beauty, diversity and wonder of the natural environment.

EE has a great opportunity to celebrate connection to nature from a range of perspectives. It helps people’s contact that place as well as its geology, ecological, biophysical, psychological, cultural and sociological dimensions. When the people are taken to experience in a natural setting, they will be more exposed to its flora and

fauna, climatic patterns and its geology. The place attachment deriving from people, experience and memories created in the place can make an individual willing to do something constructive for that place, to take positive action on behalf of the environment.

As the nature experience offers students chance to explore and shape the values, attitudes and behavior towards environment and themselves, my study explored another second critical motivating factor that is to impose a sense of fear.

Theme Two- Sense of Fear /Beneficial Aspect

My father ... had no fears at all. In that he differed greatly from me. But he could not be called a courageous man because he had no fear to overcome. **-** Yael Dayan

Fear is the father of courage and the mother of safety wrote Tweedy (1999). Without any fear, there is not courage either. Courage means being able to admit that you are weak and needy, that you have fears and anxieties. 'That man is not truly brave who is afraid either to seem or to be, when it suits him, a coward', wrote Edgar (1998). People without fear are often hard people with very little sensitivity and desire to take others into account. They do their thing and go their way, no matter what. Often people need a couple of hard experiences, some even war experiences, before they learn what fear is all about. According to Moran (2003), soldiers have sometimes strange feelings of invulnerability, and then suddenly it changes and they feel that they are no longer observers but targets, perhaps next victims. Quite the same thing can happen in every day life. Someone can walk near a gulf for a long time without being aware of any danger. And then fear suddenly hits - and often overwhelms like the fear were saying 'finally' with such a power that it's like one were suffering even for all those previous times one managed to reject the fear. Such an experience,

becoming suddenly able to feel fear that one never felt before, can create a general feeling of danger lurking everywhere. We remember how we didn't see danger before even when we should have seen it, thus the instinctive conclusion is: Perhaps there are even now many dangers that we just don't see yet. This can create an enormous amount of insecurity. Thus, being unable to feel fear is a handicap like any other handicap, it's like we are color blind, unable to see all the colors of life. And an inability to feel fear is even a worse handicap than many others because such a person can cause big problems for other people.

Imposing a constructive sense of fear can act as a powerful safeguard for the future. The reason seems that people use protective measure for dealing with the problem directly affecting them. For that reason, people start act in a way that can overcome the problem. As for an example in my study, one of the research participants said that she clean her surroundings. Otherwise, the dirty environment will harm human health, she does not want to pollute her house as she had witnessed her brother became sick due to unhealthy environmental surrounding her house. She wants to protect her family members and herself from attacking with any sort of diseases that can be caused by polluted environment. Thus the fear of getting disease compelled her to create a healthy environment. Research done by Gresele et al. (1998) also revealed the fact about the relation between threat manipulation and increased environmental concern. The research done by University of Michigan had also given that a sense of fear can develop a sense of responsibility among the children.

Likewise another research participant was found more conscious about forestation as he had seen his relatives died of landslide. As he had witnessed the death of his relatives due to landslide, he was later on motivated to forestation activities. He was alarmed by the disaster caused by environmental destruction. After the death of his

relatives he realized the importance of plantation. So he is now involved in most of the greenery activities and his activities can also be related with a constructive sense of fear. As he said before that incidence also he knew that plantation is important to conserve the environment, he had positive attitude towards environment but he never took it seriously and related his knowledge with behavior. He was not involved in any greenery activities. However those deadly disasters totally awaken him to take action in real sense. In the opinion of the research participants, most people start thinking when they are in danger and try to overcome problem influencing them directly, this depicts sense of fear.

Let's see an example of Tripti and Ansikha whose view towards environment was much influenced by their culture and religious values they had taken by heart. Through my research, these students put the view that they were inclined religiously during their early years. They were of the opinion that religion (some aspect) had touched and set it in their mind that she can't escape it. They were psychologically rooted in the relation of human beings and nature very spiritually. Ansikha considered the very plant 'Tulsi' as the symbol of God and was taught to plant it, care it, love it and worship it by heart, otherwise it will be disrespect for God and that is considered as a sin. She accepted religion because of trust and a sense of fear. Her belief in God in early years made her do for the sake of God. The thing which makes one trustful is pursued as faith kept by the people and accordingly they initiate their activities. Therefore, people have become faithful to different religions. Whatever influences the individuals, it becomes their religion. The person who got influenced from his or her mother's care regards the mother as god and with due respect takes worshipping as his or her religion. In this way, all influential objects become the foundation of religion. We have been confronting with many examples around our places too. People do not

throw waste if only one stone is placed as a symbol of God and do not hesitate to throw near by places, cleans around the places of god and goddesses. The research participants pointed out that they believe the fact that they carry out these actions as acts of faith. When the matter of religion comes, they feel that it is a sin to do anything against religious values. So this depicts their faith upon God. The religious values which made them to do such act and this cannot be said wrong in any sense. As religious values and culture is able to have an impact in peoples' life, our formal education also needs to improvise itself so that students take it as their own religion. It can be said that a sense of fear as a sentence is extremely inevitable to impose terror upon people for bleaching what they should not.

Ansikha planted Tulsi due to religious convictions. Deeming Tulsi God, it was planted. In such tasks, school education sounds to have supplemented. Through research participants' remarks, it's not obvious that school education has changed them or not. Since forefather, from one generation to another generation, father-mother, grandfather-grandmother, whatever they have told, our research participants have made endeavors to follow a note written in religion. My findings have shown that teachers were not successful to set things found in the books in the students' brain like religion. First of all, religious theology and precise guidance of grandparents have motivated and she took it by heart. Religion gives moral lesson and education to students. I asked other students regarding value of religion and plants in their life. Their answered was alike. Like her colleagues she answered that religion creates interest in planting and education lets her recognize planting trees makes environment nice... In this modern age, we do muse how religions moves have stunned students and why they have adopted them. Though they tend to be modernized, surprisingly they have ensued religion. To some extent, religion is a sort of informal education.

It's striven to give education through education. Some student do adopt while some don't. It relies upon how it's projected and explained. Ansikha and Tripti's religious belief in plantation has shown that formal education gives and opportunity to test the staple role of it scientifically. Tripti stated that she used to preserve trees due to religious moves and school education let her know how it benefits environment. But if not done since past, she would not have been eager to do so.

As my researcher had related sense of fear with environmental concern, Gresele et al. (1998) had also revealed one of the starting points of action generating process is the perception of threat. This construct has two components, the perceived vulnerability and the severity of perceived threat. The perceived vulnerability as described by the author is the person's perception of the probability or likelihood of the threat actually occurring and the severity of perceived threat was defined as the contribution of environmental sources to an environmental threat.

Ansikha followed her elders they taught but later on she came to know that it has beneficial aspect, can be used for medicinal purpose, she became more interested. Tripti was also much involved in plantation especially the sisnu plant which has medicinal value. So when people feel that there is some benefit by acting in certain way, they will show their interest towards it. When a person knows the beneficial aspect but do not do then a sense of fear has to be imposed. But when as person do with only a sense of fear, the person should be imposed with its beneficial aspect too.

The personal threat of environmental problem can be a predictor of environmental practices so it can be said that a constructive sense of fear can be a motive for REB in an individual.

Theme Three-Practice

Practice – a method of learning by repetition. Habit strength is another concept that has been found to be important in engaging in a given behavior which is a function of the habit of performing the behavior, the intention to perform the behavior, conditions which act to facilitate or inhibit performance of the behavior. Individuals must first intend to participate in a given behavior or activity, as the behavior or activity is repeated over many occasions; participation becomes habitual and requires little conscious intervention.

An example of practice developed to habit can be found in our research participants who are involved in household sanitation. It was found that family had played a great role for instilling environmental consciousness and sensitivity of their children. Since young people develop some skills in early ages, their families' viewpoints can influence on development of those skills. In this sense, according to the participants, families had helped them to get into action on behalf of environment. In other words, family had model their children by doing. But the teaching of families to the children was routed through social factor and religious factor which may or may not be related with the current understanding of REB. But it gives insight to an important point that if the children are given the responsibility of doing a particular task since childhood repeatedly, they will develop as their habit in later years too.

While asking about household sanitation, my research participants replied that they had learnt all these things in their text books, reference books etc, but it was the instruction and direction given by their senior family members so that they could have their sense of responsibility since the childhood.

Thus the research participants developed the habit based on family culture; it shows people most likely do things what they were taught by their family. Social

influences on the performance of environmental behavior have been greatly noted. Human beings inherit a culture made up in part of firmly accepted knowledge about the workings of the world. Culture is also defined as the acquired knowledge people use to interpret generate behavior. The responses of the research participants showed that they all feel good whether to make themselves happy or to others. The people think about how he/she will feel or what will happen to him/her if they act in a certain way. Detaining the residence neat and clean is one of the responsible environment behavior which their predecessors and senior family members have taught children whether understanding or not. And, in turn, children have ensued instructions of their parents. They showed that the REB found among them is related with their social norms and self satisfaction. It demonstrated a relationship between social influences and environmental behavior. In the study it was found that those who are involved in participation since childhood were boosted by the EE course however for those who are not involved are still doing things just as in the past.

Another example can be taken from Bishal, the research participant involved in reusing and recycling of the waste plastic bottles and newspapers. As far as his family background is concerned, he was living in rented house. He had neither maintained his room's cleanliness nor the surrounding area. He was studying in public school, belongs to uneducated family. He was not much sensitive to cleanliness, plantation but had interest in collecting all the plastic materials and newspapers. But a sad matter, he's motivated to such act due to his weak economic condition with a hope of acquiring financial incentives. Previously he was committed to do the action because of economic benefit rather than for the environment. Poverty of his family was basically responsible to lead him in re-using and re-managing the cleanliness of the surroundings. He collected the waste-materials, supply them, and earn money. In the

course of getting involved in selling those plastics, waste papers, he became member of the club and along with economic benefit; he is now committed to better some aspects of environment. The school education motivated him to continue his habit. It showed that previously due to economic benefit, he happened to get involved in management of waste materials though not for environment previously but anyhow he practiced it and he continued till now also as he came to know that whatever he is doing has dual beneficiary effect, one for himself and another for environment. From the above analysis, it can be conferred that practice is important for anyone to get into action.

The overall picture emerged from the responses I received from my research participants is both interesting and crucial to anyone with an interest in EE in practice. To interpret the responses drawn from the students, I gathered different behavioral theories that help to elucidate the consequences of REB. Numerous theoretical frameworks have been developed by different researchers to explain the bridge between the possession of environmental knowledge and displaying environmental behaviour.

The question of what outlines environmental behaviour is complex. Behavioral change theories elucidate the reasons behind alterations and development in individuals' behavioral patterns. In recent years, there is a growing interest in the application of these theories in the areas of education with the hope that understanding behavioral change will improve the services offered in these areas. Many of the original works outlining the major theories that are the basis for current knowledge about behavioral change theories were published in the 1970s and 1980s. Each behavioral change theory focuses on different factors in attempting to explain behavioral change. The concepts given by Miller (2005) who had defined each of the

three components of the above behavioral theory. He coined the first one as the attitudes which is the sum of beliefs about a particular behavior weighted by evaluations of these beliefs; next is the subjective norms which looks at the influence of people in one's social environment on his/her behavioral intentions; the beliefs of people, weighted by the importance one attributes to each of their opinions, will influence one's behavioral intention. Lastly the behavioral intention which is a function of both attitudes toward a behavior and subjective norms toward that behavior, which has been found to predict actual behavior.

Looking at response of most of male research participants; they were obstructed to do domestic work by familial mechanism and social structure. Dwelling in male dominated, the feeling of males appears automatically in the life of male. They claimed that their family culture was so. Now the situation has changed, parents are not seem to pressurize, they don't make much difference between son and daughter but they don't prefer to do tasks like household sanitation, they did strongly answer that they had no interest in such deed and they were not used to doing since not taught from the initiation. As far as gender is concerned; gender difference is generated by the society and outlook of people. Surrounding environment is the main cause of gender difference. Though they had the belief that household sanitation is good for environment, they research participants blamed solely to the social influence as the hurdle for their involvement in household sanitation. But they didn't blame themselves. They didn't realize that despite their family members' encouragement to do such work, they would have done themselves for the sake of their own environment where they have to stay. I have already mentioned earlier that they know that keeping environment clean and plantation are very important for the conservation of the environment but they didn't seem to translate that knowledge in their actions.

Besides they dare to blame their social tradition. Though they know they ought to do, they couldn't translate their knowledge into behavior. Young people were found to imitate their elders. So EE should work as a vehicle to make a habit through the school.

As an example of practice becomes a habit, one of the research participants, male, of course, in his school after lunch break, the students had to broom the classroom turn by turn. His teacher also used to join the students so the students used to compete to clean as much as possible, as a sort of doing by playing. And this practicing of cleaning the classroom became a habit. So now he didn't hesitate to clean his house too. It is true that forceful participation may not be beneficial but if they are allowed to do it at their comfort level, they will easily adopt that behavior not only for short period but it will be long-lasting.

Hence cumulating all the themes uncovered in this study, were then connected with the established theories that accept, reject or challenged in order to derive a new theory. The table 8 below represents the above norm.

Table 8

Theorization of the Themes Emerged

Theory/Key concept	Co-researchers responses/Themes emerged	Theorization
Mezirow's theory of reflectivity Transformation through a process involving critical reflection and new interpretation of experience	Nature experience The students let me know how important it was to them that they could go out and feel the nature. Exposure to nature reduced perceived separation between self and nature, developed a sense of nature appreciation, stimulated interest in the outdoors & motivated to learn about the natural environment. Sense of fear	I also agree that the young learners are information constructor. Learning for them can be an active and constructive process. They learn about environmental problems and their consequences and feel an obligation to act and their act is much influenced by social and physical environment they experienced. They are like as an information processor (like a computer). They can learn more by reflecting on the meaning, problems and possibility of their relation to the environment through the experience. Replacement of memorization by creating and fostering the positive reflection based on the experience provides an additional dimension of understanding how the students can develop REB.
Constructivitist theory People actively construct or create their own subjective representations of objective reality.	Use protective measure for dealing with the problem directly affecting them. Knowing risk is an important step of reducing risk. Unless, there is no internalization of the risk, implementation is not possible.	
Sense of place Ardoin People who know a place may come to care about it more deeply and people who care about a place are more likely to take better care of it	Place attachment The education approaches, such as taking participants into nature or to nature exhibits and opportunities to experience the beauty, diversity and wonder of the natural environment. , inspired them to care and take action in favor of the environment.	I agree with the fact about the compassionate perception toward the environment will emerged through the knowledge of the physical, biological and socio-cultural aspect of natural environment. They engaged more towards a place when they had emotionally meaningful ties to that place

Table 8 continue

Theory/Key concept	Co-researchers responses/Themes emerged	Theorization
Religious theory All live and inanimate things possess value and human beings are responsible for taking care of nature and all its components. It also provides stiffer penalties for those who do not tract it properly Skinner's reinforcement theory Operant conditioning is a term to describe behavior which can be reinforced by reward or discouraged through punishment. Social learning theories, Rotter Effect of behavior has an impact on the motivation of people to engage in that behavior. People wish to avoid negative consequences, while desiring positive results or effects Bourdieu's theory of habitus Habitus is a complex concept, but in its simplest usage could be understood as a set of acquired patterns of thought, behavior and taste. These patterns or dispositions are the result of internalization of culture or objective social structures through the experience of an individual or group.	Beneficial aspect They started thinking when there was optimistic result. Positive outcome from a behavior reinforced more to engage in that behavior. There was a strong effect when the educators talk about the vital role of each to the whole and how important it was to work in certain ways and came up with incidence of what could happen when something didn't get done; the adverse consequences of the human activity on the environment and environmental degradation to human. Gaining social, therapeutic, economic and ultimately environmental benefit behind each traditional, cultural and religious practice worked as a reinforcer. Practice As the behavior or activity was repeated over many occasions; it became habitual and required little conscious intervention. They demanded the need of cultivating habit since early age. Habit strength was found to be a significant stipulation that operated to facilitate or impede the required performance by the students.	I also agree the need of reinforcement in developing REB among the students cannot be ignored. When the students are conditioned for doing something, it is said to entail the development of new associations between reinforce and behavioral effects. The perception of risk and their belief that the recommended behavior will reduce the risk is also a positive reinforcer. So one would likely to adopt a given behavior if non-adoption of that behavior is perceived as a risk and adoption is seen as reducing that risk. The wider transfer of acquired knowledge and skills in the society induce a shift from the existing reality to a new reality where a new 'habitus' is created with an emphasis in transferring their environmental concern in their daily lives.

Table 8 continue

Theory/Key concept	C o-researchers responses/Themes emerged	Theorization
Subjective norm, Ajzen Belief of people, weighted by importance one attributes to each of their opinions in one's social environment influences a lot on their behavioral intentions	The consideration such as how will people they know expect them to behave is crucial in their behavioral pattern. Moreover it is interesting to learn that teachers' expectations of their students are consistently related to the students' subsequent performance.	Social reality and their norms, beliefs, expectations strongly affect the behavior of the students. However the findings suggested that the behavior change is not solely dependent on positive reflection through the experience and expectation from the significant person only, facilitating elements such as reinforcement and cultivating habit indeed exists in developing REB among our students.
Functional theory of Durkheim Appropriate education can socialize students into the proper values and fulfill the needs of society	Sense of responsibility When they were given jobs by their elders, this aroused a sense of responsibility among them. When divided the specific tasks and completed a task, another small building block of his/her character was put into place. Consistent responsibilities help them learn to be accountable, show self-restraint, and pursue excellence.	Appropriate education can be helpful in internalizing of responsibility and the willingness to saddle environmental problems, issues and a sense of connection with their surrounding and the confidence to make a difference in the world.

Theories Explored

My expression entailed going over all the above thematic findings, I had encountered some useful theories I had passed in my search to derive the answers to my research questions. Conducting a review of literature provided various theoretical perspectives which gave me valuable insights to theorize the perspectives for the development of REB which was the main purpose of my study. As depicted by my study, REB does not readily occur in response to single intervention. There is a seemingly imperative intrusions required. It is thematized from my research that nature experience, place attachment, practice, sense of fear and beneficial aspect would induce positive shift in the sense of responsibility of an individual which would help them to exhibit the intention to act and show REB in the daily life. The amalgamation of all those themes of my research participants helped me to theorize their perspectives under the following headings.

Positive Reflection Through the Experience

The current study uncovered various theories from the ground, the first of which is the positive reflection through the experience. In considering a comparison of Mezirow's theory (Mezirow, 1991) with my thought on a deeper level, the concept of replacement of memorization by creating and fostering the positive reflection based on the experience provided an additional dimension of understanding how our students can develop REB. Mezirow's reflection emphasized the process by which adults transformed through a process involving critical reflection and new interpretation of experience. The theory of reflectivity has evolved into my research participants' story line of reflectivity through their nature experience, their sense of place, their risk internalization due to different incidents and hence the likelihood of adopting REB was found to be much related to the compassionate perception toward

the environment through the knowledge of the physical, biological and socio-cultural aspect of natural environment. In developing REB, I found that nature experience reduced an individual perceived separation between self and nature, and aroused a collaborative approach in developing a sense of responsibility which in turn made them to behave in a responsible manner in the favor of the environment and environmental conservation. The students let me know how important it was to them that they could go out and feel the nature. Nature experience provided opportunities for young students to achieve some level of environmental responsibility which promoted a desire to behave in appropriate ways. The interplay between place attachment and REB was also greatly observed in my research finding. They engaged more towards a place when they had emotionally meaningful ties to that place. Other researchers have also linked the possession of a strong place attachment with the undertaking of REBs. The theory follows the reasoning that, 'People who know a place may come to care about it more deeply and people who care about a place are more likely to take better care of it' (Ardoin, 2004). As given by Shiwaku (2006), strong community linkage can let students think about community safety and importance of disaster management. The education approaches, such as taking participants into nature or to nature exhibits, inspired them to care and take action. Listening to the students in the study, I learned the importance of the experience as a motivator. This kind of motivation was found to be necessary for the children of rural as well as urban families but more for the urban dwellers who were devoid of natural environment. I came to know how their involvement in outdoor activities stimulated interest in the outdoors, which in turn motivated them to learn about the natural environment. Outdoor experiences made a significant impact on student and found that outdoor settings could be effective in motivating students towards environmental

action. REB literature in EE also supported the assertion that behavior proceeds from a complex interplay of many factors such as studied by Brod, Freimund, Hamitt, Monz, and Watson (1995), they theorized that participation in an outdoor education program increase REB.

As constructivist and social learning theories said, I also agree that the young learners are information constructor. Learning for them can be an active and constructive process. They learn about environmental problems and their consequences and feel an obligation to act and their act is much influenced by social and physical environment they experienced. They are like as an information processor (like a computer). They can learn more by reflecting on the meaning, problems and possibility of their relation to the environment through the experience. Hence it is theorized from this study that students can have positive reflection through the experience and aid in developing REB among them. In addition to this, expectations from someone was also found to be strongly correlated as facilitating element for the development of REB in our young students.

Expectation from Significant Person

The second theory I uncovered from this study that aid in adopting REB is expectation from the significant person. I found that social reality and their norms, beliefs; expectations strongly affect the behavior of the students. Moreover it is interesting to learn that teachers' expectations of their students are consistently related to the students' subsequent performance. In relationship to my findings, subjective norm as proposed by Ajzen and Fishbein (1980) has received substantial and for the most part justifiable acceptance within my research findings. The belief of people, weighted by the importance one attributes to each of their opinions in one's social

environment influences a lot on their behavioral intentions. The consideration such as how will people they know expect them to behave is crucial in their behavioral pattern.

However the findings suggested that the behavior change is not solely dependent on positive reflection through the experience and expectation from the significant person only, facilitating elements such as reinforcement and cultivating habit indeed exists in developing REB among our students.

Need of Reinforcement

When the students are conditioned for doing something, it is said to entail the development of new associations between reinforce and behavioral effects. So the third theory uncovered for the development of REB is the need of reinforcement. The reinforcement is also seen in religious theory; there is no doubt that every religion has shaped worldviews which underlie fundamental attitudes and values of different cultures and societies. Although it underlines the value of maintaining the harmony between human and nature, it has also applied the reward and punishment system of ‘paap’ and ‘punya’ as a reinforcer. The perception of risk and their belief that the recommended behavior will reduce the risk is also a positive reinforcer. So one would likely to adopt a given behavior if non-adoption of that behavior is perceived as a risk and adoption is seen as reducing that risk. Several benefits can act as a reinforcer. Through participants’ responses, it is speculated that they started thinking when there is optimistic result. The reason seems that positive outcome from a behavior reinforces more to engage in that behavior. There was a strong effect when the educators talk about the vital role of each to the whole and how important it was to work in certain ways and came up with incidence of what could happen when something didn’t get done; the adverse consequences of the human activity on the environment and environmental degradation to human.

As Skinner (2007) stated reinforcement controls behaviors. Operant conditioning is a term used by Skinner to describe behavior which has been reinforced by reward or discouraged through punishment. Operant behavior is defined as actions which have consequences. Although this may sound similar in principle to classical conditioning, it is in fact different because operant conditioning requires action on the part of the learner. In classical conditioning the conditioned stimulus is used regardless of what the learner does. For my research participants, the benefit in terms of monetary, therapeutic, social or environmental worked as a reinforcer. A reinforcer is something which benefits the person receiving it, and so results in an increase of a certain type of behavior. They served as a positive reinforcer which served to increase an operant behavior. As behavioral theory said, rewards and punishments are essential to ensuring the repetition of desirable behavior. Complex behavior is learned gradually through the modification of simple behaviors. Which of the benefits will reinforce and how can these benefits be presented so that they will strongly resonate to students matters more. However from this study the need of reinforcement in developing REB among the students cannot be ignored and additionally cultivating habit was also found to be equally important.

Need of Cultivating Habit

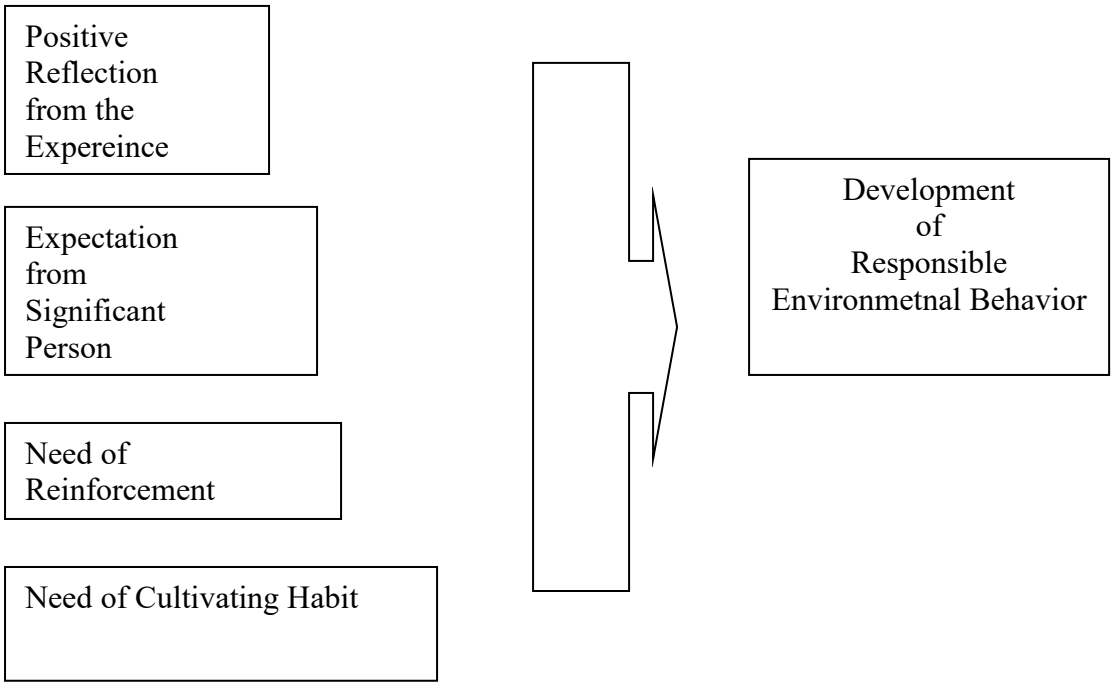
A review of existing evidence from the participants' responses also demanded the need of cultivating habit since early age. It is portrayed from the study that primarily we should construct our student's habit in favor of the environment. Bourdier's theory (1977) of social action and his main concept was also habitus. According to him, habitus is a complex concept, but in its simplest usage could be understood as a set of acquired patterns of thought, behavior and taste. These patterns or dispositions are the result of internalization of culture or objective social structures

through the experience of an individual or group. Habit strength was found to be a significant stipulation that operated to facilitate or impede the required performance by the students. The habit can be ensued good or bad. Shaping the habit necessitates an amendment in the behavior. It is important that they should be reminded so that they do it repeatedly and established as their habit. If the behavior is reinforced, with positive outcomes, it leads to repeat the behavior. As behavior is repeated, they become increasingly automated and occur with little conscious control. A research done by Koivisto (2008) also showed that learners should get the knowledge of how to behave in an environmentally responsible behavior and that learned behavior should be repeated regularly.

In connection with my findings, as said by John F. Kennedy, 'Our progress as a nation can be no swifter than our progress in education' (Todd, 2008). Indeed, education is the cornerstone of any modern society. For society to work, all parts of the whole must have a general consensus. When a general consensus exists within a society, that society can be said to be in a state of equilibrium. Although Durkheim (1977) recognized that education has taken different forms at different times and places, he also believed that education, in virtually all societies, is of critical importance in creating the moral unity necessary for social cohesion and harmony. His emphasis on values and cohesions set the tone for how present day functionalists approach the study of education. Appropriate education can socialize students into the proper values and fulfill the needs of society. Education reform, from a functional point of view, is supposed to create structures, programs and curricula that are technically advanced, rational, and encourage social unity. Most people might agree that education exists to impart knowledge to the students that they will need to function in everyday life. Functionalism acknowledges this aspect of education, but it

also recognizes another purpose of education. Of equal importance to passing on knowledge is the socialization of the individual. Charon (2007) told that socialization is the method that our social institutions 'teach people the ways of society and, in so doing, form their basic qualities.' He went on to say that as people learn through socialization, 'they internalize those ways.' Being responsible means that we do the right thing even when no one is looking. We do the right thing because it is right and not because we will get credit or praise for doing it (Samsha, 2009). 'It's not my job.' Too often, our students tangle over who's responsible for what chore around them. But experts say to look beyond the individual chore at hand. That's because behind every chore is a primary lesson of life: that taking responsibility means contributing to something larger than yourself and respecting yourself for the contribution. Within our families, we develop a sense of ourselves as unique persons with unique contributions to make to the world. The family teaches a child how to be part of the larger world, a classmate at school, a friend in the neighborhood, an employee later in life. A child first learns to 'do his/her part' by taking responsibility for his/her own chores within the family. Whether large or small, like dusting a tabletop, all tasks help the family to function. When one person doesn't do his/her job, the process can break down. For example, our research participants are also given household jobs by their elders in their house and this is done to arouse a sense of responsibility among them towards the house and family. A family may divide up the specific tasks and more important, each time the child completes a task, another small building block of his/her character is put into place. Consistent responsibilities help our child learn to be accountable, show self-restraint, and pursue excellence. Today, more than ever before, life must be characterized by sense of universal responsibility, not only nation to nation and human to human, but also human to other forms of life.

Figure 2. Generation of Theoretical Framework



Chapter Summary

From the discussion of the generated theories related to the experience of my research participants, I will be presenting the summary of my study findings in the next chapter. The accounts of the research participants illustrated that in the arena of environmental conservation, information is becoming much more widespread and accessible, whether via family, self or school education. In the arena of environmental behavior, when barriers are present, the likelihood of environmental behavior is reduced. The conclusion may be drawn that although they get the school EE, they could not connect those facts with their own behaviors. This weak relationship may be attributed to a difference in the strength of their sense of responsibility towards environmental that affect the environmental knowledge to link with behavior. School EE is increasing student information, but whether it is adding student motivation to behavioral change is

a questionable. Hence to make EE program fruitful for our students, the thematic findings of my study i.e. nature experience, sense of place, sense of fear, beneficial aspect and practice theorizes that students should have positive reflection from the experiences, expectation from significant person as well as need of reinforcement and need of cultivating habit. It pointed out the fact that the EE will gain its ultimate goal if the educators try to control students' behavior with reflection, expectations, and reinforcements and make it into habit.

CHAPTER VII

SUMMARY, CONCLUSION AND IMPLICATIONS

Summary

My final manifestation entailed going over all the different stages of my research journey, mentally revisiting all the important turning points I had encountered and the entire useful signpost I had passed in my search for answers in order to derive the answers to my research questions. Furthermore, being the main research instrument, I apprehend that my data had been processed by myself instead of by any statistical formula. Thus, as stated by Meloy (1994), this involvement was like being the witness, the lawyer, the judge and the jury all rolled into one! My data analysis then led me to achieve further insights resulting in the ability to connect my findings to previous research, to popular literature, to theory and to current issues. Eventually, I endeavored to go beyond the various linkages to generate new ideas to intellectually stimulate further understanding and possibly further research in similar or related meanings.

The research trail I followed enabled me cover an entire range of experiences and knowledge from theories, previous research and the detailed accounts of the research participants. A blend of all the experiences and perspectives helped me find a closure to my study. The implications of this research to me regarding the curiosity about the elements related with REB were assuaged to a considerable degree and my understanding of its hidden shade found more clarity and depth. Conducting a review of literature provided various theoretical perspectives of behavior theory which gave me valuable insights to deal with REB among my research participants.

As I contemplate what I have learned from this study, the students come to my mind first. The focus of this research on secondary level students allowed me to give voice to their experience on REB. As a researcher, I felt as if I have gained insight from these ten students' experiences. Never have I been clearer about the influencing factors which can motivate the students toward REB. From the ten secondary level students, I have come to better understand what their demands for adopting REB are. Moreover, I have a deeper understanding about the relationship of several influential factors and students REB. Their answers provide keen insight into what motivates them to REB.

Rapid and tremendous progress in the field of EE can be observed all over the world. The youth today are enthusiastic, and have sky-high aspirations. They are aware of the value of individual liberty, and the merit of achievement. They are, therefore, looking forward to a holistic development of themselves. The development of their mental, physical, and spiritual being is what they deserve, so that they are able to go ahead hand in hand with this fast –moving world. However, to their display, they find themselves ill-equipped for the purpose. If they are to keep EE pace with and contribute to the rapid development, they see EE around; certain factors ought to be considered to make EE more realistic for our younger generation.

The risk that learners become inactive is especially great in students who could not utilize what they learnt due to lack of essential motivating factors. Without motivation, students are not likely to be actively participated in their action. If our students are motivated to do, the information given to the students will work as an influential factor for them.

It is evident that EE provide opportunities for students to become environmentally conscious citizens. However, simply providing knowledge of

environmental conservation is not enough to preserve our world of limited natural resources. EE educators need to nourish a dynamic self-awareness. Students must be prepared to recognize their environmental responsibilities and act upon them. This involves behaving in ways that sustain and nurture the natural environment and consider the needs of others. EE educators have to be directed more attention to environmental action activities that develop REB. Such a sense of environmental responsibility is a potential outcome of different factors which is drawn from the research findings.

In developing REB, my research finding demonstrated that nature experience arouses a mutual approach in developing a sense of responsibility which will in turn makes an individual to behave in a responsible manner in the favor of the environment and environmental conservation. During the research, those students grown in the village were found to be more conscious and sensitive towards environment than urban dwellers. They provided the reason that they had followed beautiful enchanting surrounding where they'd walked and wandered. They also told that they had an emotional attachment of the place where they were born and they are keen to go beyond it. Since they were already ramified with the nature activities though knowingly or unknowingly, it helped them understand a lesson taught at school as well as boosted them to continue it. However, they put forward the view that if their childhood reminiscences did not bring sense, perhaps, school education would not have differentiated in their behavior. If we could bring behavior change, taking help from school education for research participants dwelling in the city too, the role of school education would have been extremely high. To make familiar to nature, the students can be taken to frequent nature. This trend was less found in our education system which is shown by responses of students. According to them,

students were driven to green surroundings occasionally which were not enough as far as EE is concerned.

Attachment with the nature would reduce an individual perceived separation between self and nature, which would in turn lead to an increased concern for the environment. Such a sense of connection with the nature can be a motivating factor for developing behavior favorable for the environment as well as the people themselves. As REB comprises the component of concern for the environment, nature experience can undoubtedly increase a concern for the environment. By providing opportunities for the participation to observe, to sense and to experience the environment the theoretical information that our students gained during study will be connected with the actual environmental settings.

Active participation in nature activities boost the visions of and approach to alternative lifestyles more rooted to their own periphery and increases the quality of the society. Indisputably humankind can co-exist with the sound environment when our younger generation think themselves as an intrinsic part of nature. The feeling of belongings and a deep sense of attachment toward nature can make human beings near to the environment. When the people change their attitude in terms of ‘using’ nature, their behavior can be shaped according to their attitude.

From this, one can infer that such an increased concern for the environment may be a positive step towards engaging in REB on the part of the learner. Hence the study revealed that participation in natural setting allows increase interest towards the nature stimulated learning about environmental issues which in turn motivates individuals to take REB.

During the research it was also found that a sense of fear is extremely inevitable to impose terror upon people for bleaching what they should do and should

not do. Imposing a constructive sense of fear can act as a powerful safeguard for the future. The reason seems that people use protective measure for dealing with the problem directly affecting them. For that reason, people start act in a way that can overcome the problem. The personal threat of environmental problem can be a predictor of environmental practices so it can be said that a constructive sense of fear can be a motive for school in an individual.

My research findings also suggested that practice, whether directly experienced or learned by modeling, are obligatory to produce behavioral change. It helps to increase one's confidence in the ability to take action and persist its action into habit. A person's desire to act is influenced by a host of personality factor. A person can be made more willing to become actively involved as such a person may believe his or her action can make a difference. Hence educators need to motivate the students so that students do not feel the feeling of helplessness. Habit strength is important in engaging in a given behavior which is a function of the habit of performing the behavior, the intention to perform the behavior, conditions which act to facilitate or inhibit performance of the behavior. Individuals must first intend to participate in a given behavior or activity, as the behavior or activity is repeated over many occasions; participation becomes habitual and requires little conscious intervention. Likewise, if we could impose good habit since childhood, the role of school education would have been extremely high. Teachers should emphasized on aspects of the social context in which behavior occurs, including social norms and expectations, cultural mores, social stereotype, attitudes and beliefs. Rather than treat all students the same, it is suggested that educators should tailor their approach to the needs of the individual they are dealing with. This will result in greater levels of acceptance and change.

My study has theorized from the thematic findings that students should have positive reflection from the experiences along with expectation and reinforcement (‘positive consequences’) to control students' behavior. It pointed out the fact that the EE will gain its ultimate goal if the educators try to control students' behavior with reflection, reinforcements and make it into habit.

A sense of responsibility should be developed towards the family, community, society, the country, and the whole globe as a whole. The barriers to EE are many and strong; a whole range of symptoms that something is wrong may appear, if efforts at change are directed primarily at course curriculum and students only rather than at creating a favorable environment for EE in the education system as a whole. Hence, educators should view these barriers as developmental challenges that are of critical importance for sustainable EE. The natural corollary of this, in the context of the environment, is the need for development of REB through EE. It consequently becomes the duty of those interested in the environment to spread knowledge regarding the damaging consequences of the environmental destruction we take for granted. The notion that a one-size teaching method does not fit all was confirmed by this study. The teachers need to use a wide range of effective teaching practices to meet the diverse learning needs of their students. It is a fact that every year the pressure of human beings to the surrounding environment grows, caused by both the growth of population and the increase of different developmental output. It is vital that in such a situation every individual would contribute maximally to environmental friendly lifestyle in order to preserve our environment so that our children could live in normal environmental conditions.

The indomitable human will is indeed the strongest unseen force that can achieve any goal despite being thwarted by obstacles. It is with this force and belief

that humanity survives. Through the education, it becomes our obligation to nurture this human will in our students. They will build, brick by brick, a character so strong that it achieves its desire behavior for the welfare of humanity. Education by itself aids immensely in building this will through a dynamic process designed to realize the visions for the future. The years spent in school by a student, marked by his/her vision for future makes survival for humanity a collective responsibility. Feeling responsible for each other's welfare has gained utmost importance in today's life as never before. Every aspect of EE revolves around physical, biological, social, cultural, economic and psychological aspects of life. When we relate these multi-dimensional aspects of our life with the current educational pedagogy, it paves the way for the development of REB among our students. To help the student understand it and express their responsibilities is perhaps the greatest challenge for our educators today.

The students comment showed that teachers should play a dominant role by cultivating the curiosity, interest and respect for ourselves and our world. According to them, they should have brought teaching resources which are effective and long lasting message dissemination. All the research participants seem to be pleading for some kind of improvement in the overall teaching methodologies. Therefore, EE envisages activity-oriented concepts as rightly suggested by Yomi Noibi, an African Environmental Educationist. He stated that: 'Learning to be environmentally literate comes through 'doing something' for the environment and not just through learning about the environment.' The conflict among different choices out of a feeling of responsibility towards environment can be increased through various frameworks. The concern for environment in all of its varieties has been involved among various communities and social groups through various instances of culture such as religion, beliefs and of course the values that shape the way we define normative hierarchies of

our performances. Hill (1978) as cited in Gupta (1992) observed that we are not going to be saved by nuclear power, not even by solar power, nor by only religion or political doctrine. The only thing that can serve us is to become perfectly connected with our innermost feeling; this is our fundamental responsibility as human beings. The student must be a willing participant, ready to engage in the learning process. The teacher can create the atmosphere in the classroom, but the student must be receptive. Learning should cause a change in thinking after digesting information. The student must make the connections within himself or herself to create this new awareness. Knowledge has to become a part of the student as he/she begins to make new associations and own it for himself/herself. The learning requires that the students should have a vested interest in their own learning process, rather than being 'spoon fed' a bunch of information to memorize or accept.

Global environmental degradation is the greatest challenge of our time. There is increasing global awareness of the need for an integrated approach to analyze and mitigate the global environmental problems. Specifically, land degradation, water crises and the potential impact of climate change on natural resources and food supply are timely and relevant issues for survival of human-kind particularly in developing countries.

Everyone must know that the identification and remediation of resource degradation at various scales resulting from human activities is of particular importance worldwide, as it adversely affects the sustainable development of the society as a whole. Examples of such problems include the misuse or over-exploitation of natural resources resulting in various forms of soil degradation, deforestation and land use changes, loss of biodiversity, reduction in food security, the impact of short and long term waste disposal, the industrial, urban and agricultural

pollution of drinking water, and climate alteration due to air pollution and emissions of green house gases. Finding solutions to these environmental problems, which affect not only a large proportion of one society but the entire globe, requires both a comprehensive understanding of the geological, physical, chemical and biological mechanisms operating within soil, water, and forests including natural phenomena, as well as human dimensions of the problem and socio-economic and political ramifications.

In an agricultural context, climate change, land degradation, water issues, food security, in conjunction with socio-cultural and economic aspects are core issues relevant to the science of global change. Greater understanding of factors and processes linked to these issues will be necessary for achieving restoration, protection and improvement of the environment. The time has come to implement the philosophy of 'think globally and act locally'.

With increasing urban population in Nepal, the demand for natural resources is also increasing, the REB leading to environmental degradation and pollution problems. The country is facing urban environmental issues such as air pollution, water pollution, waste disposal problems, etc. Now Environment issues have to be debated by even the common people. We know that EE helps foster better relationships between people and nature, people and society, and people themselves. It enhances our visions of and approaches to alternative lifestyles more rooted to local communities and increases the quality of our society. Toward creating a sustainable society, which is one of the most emerging global challenges, we have to commit our self to taking an initiative in exchanging and cooperating with various sectors for promoting a variety of EE practices and establishing related institutions. Underneath

this growth, there has to be an increasing need to develop and improve ways and means conducting EE in entire Nepalese society.

Our education system has a key role in resolving our domestic environmental challenges, and also to achieving sustainability on a global scale. The past several years have seen the rapid development of EE in Nepal. Through this process, EE has hoped made a great contribution to increasing public awareness and understanding of the environment. Now it is time to develop EE in a more comprehensive manner, emphasizing the significance of citizens' participation in improving the environment. In order to contribute to a comprehensive development of EE, the society needs to promote theoretical studies and make proposals and recommendations based on analytical studies of past practices and experiences.

Since EE is already a part of the education system in our country, we need to know that development of EE depends on the history of each country in terms of environmental problems, political situation, economic conditions, etc. The conventional approach may enhance knowledge, but may not result in raising awareness and changes of attitudes leading to increase in participation. Since it is human behavior that harms or helps the environment, we should try to change the behavior so that their activities lead to social change for environmental improvement. Without a healthy environment, life of many creatures, including us humans cannot be sustained. This is not an assumption but a reality. We have to change our behavior towards environment if we intend to improve our quality of life.

Teachers who struggle to implement EE within the framework of traditional education system may succeed in the classroom for the short time, but their efforts are usually not sustainable. Goal of the students should not only to get good marks in the classroom but to build themselves a good citizen who can take responsibility for the

future. Teachers also cannot succeed with out framework factor provided by some concerned levels and MOE also cannot succeed in steering educational development in the field of environment without full support from all the stakeholders.

The philosophy, method and process of EE is undoubtedly, based on learning by doing. EE not only consists of reciting environmental facts in the form of a lecture but also consists of giving students the opportunity to re-interpret a fresh, and let the students learn to change, out of the actual experiential context and they will be able to do this only if they get the opportunities to confront the facts, experience nature, hypothesize, or gain real experiences.

Conceptually environmental issues require systems thinking not just understanding natural ecosystem but also human system. Understanding the interconnection between natural and human system is intellectually challenging and requires openness to a wide range of paradigm. If school system get real task to do, their instruction takes an additional meaning for the students. They will learn that their input and effort and concern are important for the society. They can make a difference.

Thus I intended to do this research, which is hoped to be relevant particularly for capacity building of professionals teaching global environmental issues in the regional, natural and international context. It will definitely empower educators in designing and implement EE up to its final goal level. The findings from this research, although limited in area will contribute to the ongoing demand for scholarly research on EE issues and policies in the context of school education. These findings do elucidate and ease our environmental educators to face some of the pressing concern due to increasing environmental problems.

Conclusion

It appears that development of REB is an artifact of a number of factors. We need to provide opportunities for younger generations to experience the beauty, diversity and wonder of the natural environment. The critical component is a person's subsequent attachment with nature which motivates an individual to act upon environment. An individual can intentionally act on a natural environment when they have a perceived threat of the existence of the problem. Thus a sense of fear that or the knowledge of the existing problem and its impact in the future or the beneficial aspect of a particular action appeared to be a prerequisite to induce a positive shift in increasing a sense of responsibility which would let an individual show their REB. Another critical component found is the practice at an early age. If an individual is made to practice at an early age, the individual will set that practice into habit.

Through the themes uncovered by grounded theory and their connectivity with established theories, certain theories were emerged. It has theorized that the positive reflection from the experiences, expectation from the significant person, need of reinforcement and need of cultivating habit roots into our students for their development of REB.

I believe that the theories grounded through his research have inspired applications that can be useful to people, especially for our young children. My research can be a helping hand for educators who are teaching EE. I admire and respect people who have dedicated their lives to EE. I hope that my analysis of the theories will help educators better understand many of the things that can help to their students. I also hope my efforts will begin to atone for the help that can be done to many students and educators.

We recognize the need to do more, we know many current environmental problems have solutions, but we often lack the information and understanding we need to effectively assess current environmental management practices, and plan for the future. The REB we need to meet environmental challenges can be sourced through school education. There is a need to develop a more extensive and effective EE strategies to better prepare our students to understand and take action regarding current and future environmental issues.

Clearly, there is an acute need for EE which has to be directly linked to everyday living skills. Failure to teach different aspects of environmental issues with different teaching strategies will just mean that in the end result we will not achieve the ultimate goal of EE. When it proves to be relevant to the circumstances of the learners, it can enhance their capacity to cope with changing living conditions and life styles. So there are some of the educational implications extracted from my research findings which I wanted to recommend for our concerned stakeholder.

Implications in Education

Building upon the emerging theories found, I have constructed its implications in our education. The most real and pressing issues of our times is to sustain the relation between people and their world, people and their present and future. So my theoretical findings aims at change, with the new century upon us, people have to heightened awareness of both time and change, and regard them with a mixture of fear, helplessness and hope. I'm concerned with how we can actively and consciously let our students' participation in shaping change, rather than being pushed like pebbles by the traditional style of teaching and learning practices, and this must include shaping our EE teaching practice so that it might gain its ultimate goal that is generating REB among our future generations.

This research constituted a search for an appropriate theme to encourage our students towards REB through school EE. It attempted to provide a source of sense of responsibility that motivates and generate solution to increasing environmental problems through EE. As Kaplan (2000) asserted that facilitating the adoption of REB is the major challenge for the behavioral science. As with any problem, how one approach it or whether or not it can be solved depend to a large degree on how the problem is conceptualized.

The current study uncovered various theories from the ground that essentially recognized students' conscientious actions upon the environment that are attributable to increased level of cognitive capability which serve as a contributing factor to raising critical understanding about environmental phenomenon, to the adoption of environment friendly skills and their application in real life situation, to the wider transfer of acquired knowledge and skills in the society and to induce a shift from the existing reality to a new reality where a new 'habitus' is created with an emphasis in transferring their environmental concern in their daily lives.

Environment is a major determinant of the continuity of human civilization. Critical awareness about environmental phenomenon is a crucial need for the students. In addition to the focus on behaviorist approach to learning, the study has attributed itself to the significance of constructivism providing wider space for students to undergo discourse in the school, in the family and in the society to build critical awareness, create enabling attitudes, visualize formative actions and activate the actions.

Another major component of the study is related to formation (acquisition and enrichment) of relevant skills and their subsequent application in the real life situation for the insuance of better environment. This initiative of the study necessarily

espouses the theory of ‘praxis’, synthesis of theory and practice in which each informs the other. Students produce and reproduce society in its cultural, social, and economic dimensions through a cyclical process of experimental learning where emphasis is placed on gaining positive reflection through the experience.

Environment is a prime concern of the society-society needs to be widely and largely benefited from the learning of the students. Students’ learning essentially pervades the society through socialization process by the transfer of skills and knowledge which eventually becomes an animator of new ‘habitus’ resulting into empowerment. Creating a new ‘habitus’ is essentially cultural production-breaking the barriers of traditionalism and status quoism. In consistent with the theories, themes emerged through this research have also encompassed the essential elements of behavior change. Those themes can be implicated to make our students aware of the issues around them and motivate them to make a change. They could realize the consequences of their action then practice theme can be implicated in skill development to prepare for the change, initial adoption of the new behavior. It also avoids the feeling of helplessness to make a difference, maintenance of the new behavior and integration into the lifestyle. The themes can be used to increase the strength of the students’ intention in performing the behavior and as stated that complex behavior will be learned through the modification of simpler behaviors.

We have many rich cultures within our surroundings, if the understanding of teaching and learning can reflect upon the understanding with one another, we can open new doors for understanding and inquiry for our students. Education can be a tool for developing behavior in our youngsters. In using the word behavioral change, I am not just highlighting the role of education in change, but what I mean is the

relation between theory and practice and the necessary change in educational practice in itself. Perhaps we have paid insufficient attention to update EE theory and practice.

Since the goal of EE is behavioral change, theories derived by this research can be used as guides in developing effective teaching methods. The understanding of behavior afforded by behavioral change theories provides insight into the formulation of teaching strategies that tap into the mechanism of behavior change. The authors of those models (Lee & Owen, 1984; DiClemente & Prochaska, 1986) have also stated five stages of behavior change, that are awareness of the problem and a need to change, motivation to make a change, skill development to prepare for the change, initial adoption of the new activity or behavior, maintenance of the new activity and integration into the lifestyle.

To help change the myth that people are separate from the environment, educators need to utilize EE to make a clear understanding of issues and supportive atmosphere to our students to arouse an individual sense of responsibility. As shown by the study, children are best served when elders in the family take an active role in channeling both the kinds of information children process and their learning style. Likewise, our educators can also need to play the similar role to reflect the learner response to environmental stimuli.

It is highly recommended that students need to be encouraged in school. It is not that the teacher has to do something concrete or obvious with the students; rather it is important that the students should be motivated to be engaged in such action. I learned that the teachers are not disconnected from the life of the students. The house in which I observed was thriving with students engaged in variety of learning experiences. I saw students engaged in REB, family members modeling their activities. The students whether studying public does not make difference from

students who attend private schools in the ways they represent about their REB. I thought these students would have different perceptions of REB. While the life of every student is marked by socio-cultural and socio-economic differences, it affects the students in their action.

Taking responsibility is more than just cleaning the house or watering the plants, it's learning about character and contributing to the family as well as the whole environment. Everyday tasks are a good way to begin teaching our young students about his/her responsibilities. Ideally, the process begins early enough so that they still delight in doing things later on too. The age and maturity level of each student will also count while giving the tasks he/she can handle.

Teacher should take the opportunity and talk broadly about the importance of responsibility in the world. They should question about what they think their responsibilities are for themselves, their country and the whole universe. It's never too early to instill a sense of responsibility. Much of the time, teaching environmental responsibility is not about telling the students what they should do. It's about asking them telling them why that willingness is vital to their well-being and the environment.

Teachers are in a unique position to affect young students' behavior. In order for teachers to know their students and to make pedagogical decisions based on that knowledge, teacher needs to believe in their own educations. Being a good enough teacher is not adequate in any school; the teacher must have a strategic teaching toolbox to meet the broad array of students' needs and experiences so that students move through school in the post positive direction possible. There are many different techniques that can be used within EE programs. Generally the educator has to choose

a combination of the techniques to use within their system, design their materials and then implement the system.

Many techniques are effective in raising awareness; however they are not necessarily effective in obtaining behavior change. To help students cope with the changes required for sustainability, educators need to deal with these emotions and help them to feel confident in their abilities. They need to feel that changing is important, worthwhile and achievable. If they do not the learners may simply resist changing.

I come back to where I started in pondering what I have learned that the teacher must know the students and know what needs to be taught and how it can be taught so that, in the end, students are able to go toward REB. The finding in this study provides a range of implication for teachers. The results confirm the centrality of the student-teacher relationship. It is important that teacher know their students and know what needs to be taught in order to motivate students. This is especially true when the student come from backgrounds that are socio-culturally and socio-economically different from each other.

There are many methods for the EE program to be successful in achieving its ultimate goal of REB, these processes vary according to the situation of the country, people or target group. Since our country is culturally dominated, both cultural and scientific knowledge is essential for such a group. Culture is learned behavior but it is a very important part of man. We have also found that if there is a question of culture or religion or a system related to norms, values, rituals, and living patterns, people will listen, think, and do for the sake of culture. So the way to make our young students aware in the field of environment can also be done through the clarification of culture giving scientific reasons. It is essential to show the cause-and-effect

relationship between nature and culture, how values or rituals are scientific or how they are just fictitious.

Despite numerous investigations into REB in this area revealed many themes related to REB, research was indeed necessary to investigate the factors responsible for generating REB in our Nepalese context. So, it is hoped that this research study has address the research question thereby providing increased understanding of the REB which could be helpful for our educationist, students and society as a whole. Expanding the theory to teaching, the educator must encourage students to have critical reflection and new interpretations of experience and along with reinforcement, the students should translate their action into habit.

The EE has covered wide range of the societal and the environmental phenomena within a short period of development. The effectiveness of EE is not only determined by the context but also depends largely on the quality and relevancy of pedagogical approaches according to the demand of the topics. Thus these theories captured by the research findings can be an important aspect to be adopted in the Nepalese education system in pedagogical aspect of REB, an ultimate goal of EE.

Personal Implication

Choosing chores is an easy and fun activity to do as a family. As our young people move into the adult years, they can take on even greater responsibilities, which help them develop independence and an ever-increasing sense of self-reliance and competence. We should also remember that children model the behavior of their elders. So we should not expect a child to take on a responsibility when we forget ours.

As Mahatma Gandhi quoted ‘If you want to change the world, first you have to change yourself’.

What a person showing REB meant…reusing plastics?

I now realized that it's not so simple today. Being myself as a person showing REB today calls for a whole new level of greenery thinking- from what I choose at the grocery shop to how I commute to work everyday. Like me I would like others to realize that if this situation is not placed in check and reversed, then humankind will extinct even before the earth is destroyed. Unfortunately, the immoderate development and the excessive use of chemicals in the world have led to the rapid consumption of natural resources, the speedy deterioration of the natural environment, and the extinction of a variety of species. The collective result speeds the earth towards doomsday. Day in and day out everyone still consumes even larger amounts of natural resources, produces more refuse to pollute the earth, the air, the rivers and the ocean. In the modern world, everybody knows that we should protect our living environment, reduce the amount of garbage we produce, classify our refuse, and recycle or reuse as much as possible. Nevertheless, we are still consuming substantial amounts of energy resources every day, and producing tremendous amounts of refuse and pollution. In the former agricultural and pastoral ages, garbage could become the fertilizer and soil, returning to nature; in contrast, the natural resources consumed by the modern industrial and commercial sector are non-renewable. Contemporary civilization produces a huge amount of pollution, and this act is as horrible as generating a tremendous quantity of cancer cells in the body of Nature.

We should not curse modern industry and commerce; neither do we denounce the rapid development of technological production. Therefore, we are forced to appeal to all the environmental educators of the world to advise all humankind that it must take responsibility to protect the environment while engaged in industrial, commercial, and technological activities. Human beings should not, just because of their curiosity

for technological innovations and the competition of industrial and commercial wealth, keep on destroying the environment on which we rely for our survival; otherwise, humankind's history will not endure another thousand years! Knowing risk is the first step of reducing risk. Knowledge on risk gives the background for risk assessment. The next step is perceiving the risk or considering the risk in daily life. Unless, there is no internalization of the risk, implementation is not possible.

I realized that the biggest thing to remember about REB is that small actions can make a big impact such as turn the lights off while leaving the place either at room or bathroom, carry own shopping bag. One might think I'm not alone by the number of people taking such shopping bag. One day I accepted all the plastic bags, by the end of couple of hours of shopping, I was amazed to see how full my bag became, mainly from black plastic bag while some of those can be recycled, rest of the others just add to environmental hazard. In order to help achieve the global target of reducing environmental hazards, I myself as well as let my daughter get the habit of reducing the usage such as electricity as this comprises the greater part of our energy consumption. Energy saving activities is being strongly done with responsibility over the lighting, household and office equipments.

As I said, the environmental protection movement should be all-encompassing. In addition to cherishing natural resources, protecting the ecological environment, and lifestyle choices such as reducing the amount of garbage, recycling, living a pure, simple, and, frugal life, and minimizing the pollution we produce, we should further learn to respect lives and others, always reminding ourselves of this thought: apart from ourselves, there are innumerable other people; apart from our one generation, there are our innumerable descendants in future generations.

Future Research

It is hoped that my study could be a starting point from which to address several issues related to EE and REB. Since this study is the first attempt to explore the facts of REB among students of Nepal in particular, it could be a trail blazer by arousing interest in conducting further research in the same or related areas. Since my topic has hitherto not been researched in the context of all the age group people, I am now paving the way for others to continue exploring different aspects of the elements I have researched.

Several issues for future research need to be addressed at the educational policy, school and pedagogical levels. In addition, other significant approaches which would be worth investigating could include:

First, as this research has uncovered the theories for the development of REB through grounded theory, those can be used as a baseline for further research.

Second, students in different countries may have different sources of influential factors. Researchers can find out the most influential reference group for each specific national culture. People living in rural area not only have different environmental problems to someone living in an urban centre but he/she also has different cultural techniques and mechanisms to cope with these problems. If educational concepts ignore these differences they are doomed to failure before they begin.

Third, the use of student subjects may limit the generalizabilities of the findings. It is possible that students of different stages possess dramatically different variable factors.

Finally, this study can be extended to be an international comparative study. The above research areas would help to generate and maintain interest in investigating

various aspects of EE in general and REB in particular in order to generate new knowledge about the factors associated with it. I think that the results can be useful for authorities that are responsible for developing new campaigns and policies of environmental awareness as well as for those who promote sustainable lifestyle. I hope, my research can be a foundation for other researchers who are interested in similar research in order to evaluate the progress of the society. As there is a lack of research in this area and, students, educational faculty members and potential researchers could be encouraged to investigate this issue as a part of their academic or professional research.

It is important to keep in mind that when we work together in double harness and improve today as well as think in environmentally friendly way at this present moment and act aiming to future, our progress will continue positively in future.

Towards the end of my report, I would like to put a story of Dinosaur (Barber, 1999) so that my readers can ponder it and realize the urgent need of today's world.

The story goes like this…….

Dinosaurs: victims of pollution?

> As we humans exploit nature to meet present needs, are we destroying resources needed for the future? Can we assume that life on earth as we know it can continue no matter what the environmental conditions? Or are we setting the stage for an eventual sixth extinction—our own? Dinosaurs lived on Earth for over 100 million years. Then, 65 million years ago, they suddenly died out. By studying rocks, scientists discovered that a layer of a chemical called iridium appeared in many different rocks all around the world. Some scientists believed that this chemical came from a meteorite. They thought this meteorite hit the

> Earth in the time of the dinosaurs and made them extinct. The meteorite was probably as big as a large mountain. An object like this hit the Earth with a great force and kills all living creatures over a land area as large as Asia. It also made vast clouds of dust and gas. These clouds blocked out the Sun for many years, making the Earth dark and cold. If this really did happen, the pollution in the air and the freezing temperatures probably killed the dinosaurs.

Hope I am not alone in my embarrassment and disgust at the sight of people showing carelessness of their environment. 'When will this ever stop? If we do not think from today, no doubt, instead of dinosaur, the word human being will be inserted in no time.

So, it is not enough to say that we care, because the future cannot measure our words or good intentions, only our actions!!!!!!!!!!!!!

Imagine …..What should be the habit for our students?

When they start their day, they clean the room themselves and if they have time, they help other family members in cleaning them, when they go for shopping they use shopping bag, collect the plastics in buckets so it can be re-used or recycled**,** take interest in plantation by watering them regularly, manuring them if necessary.

At school they have 'scarecrow monitors' whose job it is to oversee not to throw garbage here and there or bring any packaged lunch.

Their teacher says every act is now watched carefully, at school. 'Environment is precious and we've got to realize that natural things are not always there.' There has been a complete mindset change among our students. It has become socially unacceptable to be seen someone acting against the nature- the campaign towards change has been remarkably successful.

I would like to put my quote

‘In the end we will conserve only what we love.

We will love only what we understand.

We will understand only what we are taught.’

We repeat that quote often because it is the essence of what our EE is about.

Love for nature and fear that future generations will not be able to enjoy it.

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Appendixes

Appendix A: Letter of Permission (Community Head/Club Member)

Date……

To,

The Administration

(Name of Club)

…….

Sir/Madam,

Re: Request to provide the list of secondary level students

I am presently a Ph.D. student at the Kathmandu University, School of education and preparing to conduct my research work on Exploring the emerging theory for Development of Responsible Environmental Behavior. The purpose of my study is to find out the factors related to environmental behavior.

Regarding above, I would like to request to provide me the list of students studying at the secondary level and conduct interviews with them. Since I am doing qualitative study, I would be visiting their houses at frequent times. The results of my research will provide the pertinent information and valuable insights for our educationist and the society as a whole. You will, in addition, be presented with a report containing my findings upon completion of my research. Throughout the research, I will be guided by Professor Dr. Tanka Nath Sharma and other professors. I

would greatly appreciate your facilitation to let me work on this area. If you require any additional information related to my research work, please feel free to contact me.

Thank you in advance for your cooperation.

Yours sincerely,

_____

Anjana Shakya

Researcher

Appendix B: Letter to Guardian

Date……

(Name of guardian)

Address…….

Sir/Madam,

At first, I would like to express my gratitude for your interest in my research and letting me to take your child as my valued participant on Exploring the emerging theory for Development of Responsible Environmental Behavior. Since I am using qualitative research methodology, I am seeking your comprehensive cooperation too. The purpose of this letter is to restate few things which we have already discussed and to secure your permission on the Research Participant's Guardian Consent form attached that you will find attached.

Through the participation of your child in this research, I hope to understand the motives necessary for the development of responsible environmental behavior, and other necessary inputs regarding environmental education. But before this I will be giving a theoretical question to your child related to environmental issues and on the basis of the satisfactory answers received, I will further continue my research.

I appreciate your cooperation and thank you for all the support and suggestions necessary for my research. If you have any further questions before signing the consent form, please feel free to contact me.

Warm regards,

Anjana Shakya

Researcher

Appendix C: Guardian Consent Form

I agree to let my child to participate in the research- Exploring the emerging theory for Development of Responsible Environmental Behavior.

I understand the purpose and nature of this study and grant permission to make my child as the research participant for this research purpose.

_____ _____

Guardian Researcher

Date: Date:

Appendix D: Letter to Research Participants

Date……

(Name of student)

Address…….

Dear……

Thank you for your interest in my research on exploring the emerging theory for development of responsible environmental behavior. Since I am using qualitative research methodology, I am seeking your comprehensive cooperation. The purpose of this letter is to restate few things which we have already discussed and to secure your permission on the research participant consent form attached with this letter.

I value the unique contribution that you can make to my study and I am positively hoping about your participation in it. Through your participation in this research, I hope to understand the motives necessary for the development of responsible environmental behavior, and other necessary inputs regarding environmental education. But before this I will be giving a theoretical question related to environmental issues and on the basis of the satisfactory answers received, I will further continue my research.

I acknowledge your participation and thank you for the commitment of time, enthusiasm, and valued suggestions. If you have any further questions before signing the consent form, please feel free to contact me.

Warm Regards,

Anjana Shakya

Researcher

Appendix E: Research Participant Consent Form

I agree to participate in the research- Exploring the emerging theory for Development of Responsible Environmental Behavior.

I understand the purpose and nature of this study and grant permission for the details to be used by the researcher for academic purpose/ or any other future publications. I understand that a brief synopsis of each participant including myself, will be taken and will include the following information: first name, age, school, family status, surrounding environment and factors related to environmental behavior and any other pertinent information that will help the reader to be informed with the research participant.

I agree to conduct interview sessions as per required by the researcher which could last an hour per session at a time mutually convenient to both the researcher and myself. I also agree the researcher to observe the engrossed activities and provide necessary information for the purpose of research process. I also grant permission to tape record my interview session.

_____	_____
Research participant	Researcher
Date:	Date:

Appendix F: Questions on Environment

Tick the best answer

1. The quality of life of people or specific place, society and country is mostly affected by
    a) Spiritual, physical and biological aspects
    b) Economic, political, socio-cultural and environmental aspects
    c) Religious, psychological technical aspects
    d) I have no idea
2. How can the earth be cared?
    a) Over use of forests
    b) Commercialization of natural resources
    c) Conserving forest planting trees, protecting live trees, religious places, public places, rivers, cleaning our house, courtyard.
    d) I don't have idea
3. Why should resources be utilized by maintaining a balance of carrying capacity of the earth?
    a) Quantity of existing forest, cultivable land, mineral, drinking water, settlement area is limited
    b) Earth can bear excessive use of its resources
    c) Resources will not lose their quality
    d) I don't have idea
4. What is quality of life?
    a) All the services and facilities required for the happiness and satisfaction of people
    b) Lack of essential needs

c) Sanitary problem

d) I don't have idea

5. What is the relation between quality of life and sanitation?

a) Quality of life cannot be perfect without good sanitation

b) Sanitation is not important for us

c) There is no relation between quality of life and sanitation

d) I don't have idea

6. Why is the good sanitation required for us?

a) It makes the environment dirty

b) It keeps the environment pure and green, and make us healthy

c) It cause disease

d) I have no idea

7. What is ozone layer depletion?

a) Thinning of ozone layer by interaction of ozone with different gases

b) Increase of ozone layer

c) Good effect on atmosphere

d) I have no idea

8. What are the methods helpful for environmental sanitation?

a) Houses should be kept clean

b) Trees should be planted

c) Garbage from the house should be properly managed

d) I have no idea

9. What is bio-diversity?

a) Variety of living organisms within species, between species and ecosystems

b) Micro-organisms only

c) Seas and oceans

d) I have no idea

10. Acid rain is

a) Acid preparation consisting of mixtures of different acids harmful for forests, lakes

b) Rain coming in winter

c) Clean rain

d) I have no idea

11. Global warming

a) Increase of earth's surface temperature due to absorption of earth's infra-red radiation by greenhouse gases and can cause climate change

b) House warming

c) No idea

12. Deforestation causes Loss of biological diversity, land becomes dry and rain goes on decreasing

a) Nothing happens

b) No idea

13. The clean pollution free energy resource is

a) Coal

b) Solar energy

c) Petroleum

d) Nuclear power

14. Effects of development work on environment

a) Deterioration of ecosystem

b) Deteroration of natural resource

c) Change in nature

d) All of above

e) I have no idea

15. Controlling measures of negative effect of development work on environment

a) Proper management of wastage, environmental sanitation, mass aforestation

b) Restoration of natural resources

c) Control of explosion and smoke

d) All of above

e) I have no idea

16. Plastic is an example of

a) Biodegradable material

b) Non-biodegradable material

c) I don't have idea

17. Controlling measure of human activities on environment

a) Forest conservation

b) Pollution control

c) Solid waste management

d) All of above

e) I have no idea

Appendix G: The List of Activities

Sir/Madam,

I am presently a Ph.D. student at the Kathmandu University, School of education and preparing to conduct my research work on Exploring the emerging theory for Development of Responsible Environmental Behavior. The purpose of my study is to find out the factors related to related environmental behavior. Regarding this, I would like to request to provide me the list of activities which can be considered as responsible environmental behavior and can be performed by a person of age 14-16.

1. ……
2. ……
3. ……
4. ……
5. ……
6. ……
7. ……
8. ……
9. ……
10. ……
11. ……
12. ……
13. ……
14. ……
15 ……

Appendix H: Activities Listed by the Experts as an Indicator of Responsible Environmental Behavior

1. Sanitation, helping all the family members in cleaning them, brooming the house and near by places, dust the furniture, keep the wash basin, bed room, drawing room clean, do not spread books here and there.
2. making a flower garden
3. planting trees
4. garbage management
5. paper recycling
6. water management
7. going to green clubs
8. Saving electricity
9. Buying domestic goods
10. Saving water while brushing their teeth
11. While shopping, bring their own shopping bag
12. Use of public transport
13. To cultivate the habit within themselves to use dustbin
14. To wash their teeth regularly
15. To keep the classroom clean
16. To convey the message relating to environmental conservation to the parents, neighbors ,and other community members
17. To get involve in environmental conservation camps frequently
18. To use less water

Appendix I: Details of My Research Participants

Female Participants

Nistha. Nistha, a fifteen years old girl, is a student of rural located public school and currently enrolled in urban public school to complete her secondary level. She is considered as a bright student scoring eighty to eighty five percent in Environmental education subject in almost all the terminal exams. She belongs to Rajput community, born and raised in rural area, had a big family of eight members, parents, two uncle and aunts, one cousin brother and two younger sisters and one younger brother. All the family members are well educated, however the female members are housewives and the male members work outside. Her family is a joint family and all seems working and helping each other. Her family members follow Hinduism as their religion and quite often involved in social and religious activities. Her family members are very liberal for their children, however, wants Nistha and her sisters to get more involved in all the social and religious activities. Her family is secure financially, they own a big house in the village, here in Kathmandu also, they have a middle sized house but very neat and clean with full of greenery. Though here the house is not so big as in the village as described by Nistha, everything was kept properly and neatly. There were lots of flower pots around the house and in the backyard; they have grown few fruit trees and vegetables also. All the flowers and fruits were of seasonal and grown properly. All the family members have their defined duties and all of them obey it properly.

Benisa. Benisa, is fifteen years old girl, a student of urban located middle sized private school and considered as a bright student scoring almost eighty percent in Environmental education subject in all the terminal exams. She belongs to Newar community, born and raised in urban area, has a big family of ten members, parents,

uncle, aunt, two cousins and three sisters. All the family members are well educated. They have their own home business so all the family members are busy in the house itself, however the female members are mostly found busy in household activities and male members controlling the business and other external activities. Her family members follow Buddhism as their religion and quite often involved in social and religious activities. Her parents are characterized by little bit traditional, and wants Benisa and her sisters to get involved in all the social and religious activities. All the family members have their defined duties and all of them obey it properly. Her family is secure financially, they own a neat and clean middle sized house with full of greenery. Their house is located in the heart of the city. The house is surrounded with lots of flower pots around the house and in the backyard; they have grown few fruit trees and vegetables also. All the flowers and fruits were of seasonal and grown properly.

Ansikha. Ansikha, is fifteen years old girl, a student of rural located public school. She is considered as a bright student scoring almost seventy five percent in Environmental education subject in almost all the terminal exams. She belongs to Brahmin community, born and raised in rural area, has a small family of four members, parents, and one younger brother. Her parents are not well educated. Her family members follow Hinduism as their religion and quite often involved in social and religious activities. Her family members are very liberal for their children, however, wants Ansikha to get involved in all the social and religious activities. Her household consists of single wage earner and stay at home mother. She owns a neat and clean middle sized house with full of greenery. The house has a small chowk at the front side where they have beautifully grown Tulsi plant in the flower pots and few other medicinal plants.

Tripti. Tripti, is fifteen years old, a student of urban located big private school and scoring almost eighty five percent in Environmental education subject in all the terminal exams. She belongs to Newar community, born and raised in urban area, has a small family of four members, parents, and one younger brother. All the family members are well educated. Her father has his own business of export and import, her mother goes to a private office. Her family members follow Buddhism as their religion and quite often involved in social and religious activities. Her family members are very liberal for their children, however, wants Tripti to get involved in all the social and religious activities. Her family is secure financially, they own a neat and clean middle sized house with full of greenery. Her house is situated inside the chowk and in the middle of the crowded city. In the roof of the house, there are lots of beautiful flowers and lots of medicinal plants grown. Though the house is not so big, everything is properly arranged, neat and clean but the chowk was very dirty expect in front of her house.

Male Participants

Hem. Hem, is fifteen years old, a student of rural located public school and considered as a bright student scoring eighty to eighty five percent in Environmental education subject in almost all the terminal exams. He belongs to Rai community, born and raised in rural area, has a big, not much educated family consisting grandparents, parents, uncle, aunt. His family members follow Buddhism as their religion and quite often involved in social and religious activities. His family members are all straight forward, shows interest in all social and religious activities. His family is quite secure financially owns a middle sized house.

Narendra. Narendra, is fifteen years old, a student of urban located public school, previously studied in rural public school and scoring almost seventy percent in

Environmental education subject in almost all the terminal exams. He belongs to Choudhary community, born and raised in rural area, has a big, educated family consisting grandparents, parents, uncle, aunt, brother and sister. His family members follow Hinduism as their religion and quite often involved in social and religious activities. His family is quite secure financially owns a middle sized house. The family members have their own defined duties and all of them obey it properly. His grandparents seem little bit strict socially and culturally. There is a small field in front of his house with lots of beautiful flowers, fruits and vegetables grown.

Bishal. Bishal, is fifteen years old, a student of rural located small public school and considered as a bright student scoring eighty to eighty five percent in Environmental education subject in almost all the terminal exams. He belongs to Chetri community, born and raised in rural area, has a big, not much educated family consisting grandparents, parents, uncle, aunt, brother and sister. His family members follow Hinduism as their religion and quite often involved in social and religious activities. His family is not secure financially owns a small rented house. He is now living alone so he has to manage everything himself. He spends his free time watering, manuring the trees, flowers in landlord's house.

Anuras. Anuras, is fifteen years old, a student of well recognized urban located well recognized private school and considered as a bright student scoring eighty to eighty five percent in Environmental education subject in almost all the terminal exams. He belongs to Newar community, born and raised in urban area, has a small well educated family consisting of five members, parents and three elder sisters. His family members follow Buddhism as their religion and quite often involved in social and religious activities. His parents are very liberal for their children, especially for Anuras so never seems to force him to get involved in any

social and religious activities. His family is quite secure financially which was also depicted by their big, sophisticated, house. His parents and sisters were involved in making the house neat, clean with full of greenery, however Anurag used to be occupied with his course books or computer games.

Bibhav. Bibhav, is fifteen years old, a student of urban located private school and considered as a bright student scoring eighty to eighty five percent in Environmental education subject in almost all the terminal exams. He belongs to Newar community, born and raised in urban area, has a big educated family of eight members consisting of grandparents, parents, uncle, aunt, cousin sisters, and elder sister. His family members follow Hinduism as their religion and quite often involved in social and religious activities. His parents are very liberal for their children, especially for Bibhav so never seems to force him to get involved in any social and religious activities. His family is quite secure financially owns a middle sized house. They also own a small grocery shop in their house.

Kishan. Kishan, is fifteen years old, a student of rural located public school and considered as a bright student scoring almost sixty five percent in Environmental education subject in almost all the terminal exams. He belongs to Chetri community, born and raised in rural area, has a big family consisting grandparents, parents and elder sister. His all family member are not much educated. His family members follow Hinduism as their religion and quite often involved in social and religious activities. Kishan's father owns a small grocery shop. He also stays there. His parents are very liberal for their children, especially for Kishan so never seems to force him to get involved in any social and religious activities. His family is secure financially owns a middle size house.

Appendix J: Students Interview Protocol

I will begin interviews by saying 'I really appreciate your help to understand how you got into that action. As we have already discussed you and me both have seen the environmental degradation and know the need of its protection. For that the people need to change some of your behaviors. So I really need the young generations like you to tell me how you got into that habit. Is that OK? The questions I will ask you are about your understandings, your insight, and your opinions. There is no right or wrong answers. Your ideas might be different from others, and that's fine. I have a tape-recorder as you know because I want to remember everything you say, shall I start?'

Then I will begin my interview. Below is a list of potential questions.

1. Do you believe that you can influence to resolve environmental problems and issues?
2. How do you get into the habit of cleaning the surrounding environment?
3. How do you get into the habit of plantation?
4. How do you get into the habit of reusing plastics?
5. Who inspired you?
6. Are you doing it since childhood?
7. What are the things you did after reading from EE book?
8. Why don't you look after the cleanliness of places?
9. Don't you feel that you have to clean the places you live?
10. Can you improve the surrounding environment of your places clean and healthy?
11. Does your school teaches you to clean the places you live?

12. Do you ask neighbor about necessity of healthy environment. Discuss with other friends about it.
13. Do you select any natural resource available around you, develop a conservation program for protection of that natural resource with the help of local people.
14. Do you select suitable place near the locality, plant the local plants that can grow there, care it by providing manure, water, fence.
15. Do you ever think about recycling things?
16. Do you say no to plastic bags while going to market?
17. Why?
18. What methodology does your teacher adopt to teach EE in school?
19. Which method do you feel more impressive?
20. In a question asked that how has been his association with nature?
21. How does the pollution impact you?
22. How do you think that the student can be motivated into joining this eco movement actively?
23. What is the role of the schools?
24. What steps would you take to improve the environmental condition in your place?
25. What legacy would you like to leave behind?
26. How do you see the future? What do you suggest to improve EE in your school?

Appendix K: Global Warming- Top 10 Things to Reduce Global

Burning fossil fuels such as natural gas, coal, oil and gasoline raises the level of carbon dioxide in the atmosphere, and carbon dioxide is a major contributor to the greenhouse effect and global warming. We can help to reduce the demand for fossil fuels, which in turn reduces global warming, by using energy more wisely.

Here are 10 simple actions to help reduce global warming.

Reduce, Reuse, Recycle

Do your part to reduce waste by choosing reusable products instead of disposables. Buying products with minimal packaging (including the economy size when that makes sense for you) will help to reduce waste. And whenever you can, recycle paper, plastic, newspaper, glass and aluminum cans. If there isn't a recycling program at your workplace, school, or in your community, ask about starting one. By recycling half of your household waste, you can save 2,400 pounds of carbon dioxide annually.

Use Less Heat and Air Conditioning

Adding insulation to your walls and attic, and installing weather stripping or caulking around doors and windows can lower your heating costs more than 25 percent, by reducing the amount of energy you need to heat and cool your home. Turn down the heat while you're sleeping at night or away during the day, and keep temperatures moderate at all times. Setting your thermostat just 2 degrees lower in winter and higher in summer could save about 2,000 pounds of carbon dioxide each year.

Change a Light Bulb

Wherever practical, replace regular light bulbs with compact fluorescent light (CFL) bulbs. CFLs also last 10 times longer than incandescent bulbs, use two-thirds less energy, and give off 70 percent less heat. It is estimated that if every U.S. family

replaced one regular light bulb with a CFL, it would eliminate 90 billion pounds of greenhouse gases, the same as taking 7.5 million cars off the road.

Drive Less and Drive Smart

Less driving means fewer emissions. Besides saving gasoline, walking and biking are great forms of exercise. Explore your community mass transit system, and check out options for carpooling to work or school.When you do drive, make sure your car is running efficiently. For example, keeping your tires properly inflated can improve your gas mileage by more than 3 percent. Every gallon of gas you save not only helps your budget, it also keeps 20 pounds of carbon dioxide out of the atmosphere.

Buy Energy-Efficient Products

When it's time to buy a new car, choose one that offers good gas mileage. Home appliances now come in a range of energy-efficient models, and compact florescent bulbs are designed to provide more natural-looking light while using far less energy than standard light bulbs. Avoid products that come with excess packaging, especially molded plastic and other packaging that can't be recycled. If you reduce your household garbage by 10 percent, you can save 1,200 pounds of carbon dioxide annually.

Use Less Hot water

Set your water heater at 120 degrees to save energy, and wrap it in an insulating blanket if it is more than 5 years old. Buy low-flow showerheads to save hot water and about 350 pounds of carbon dioxide yearly. Wash your clothes in warm or cold water to reduce your use of hot water and the energy required to produce it. That change alone can save at least 500 pounds of carbon dioxide annually in most households. Use the energy-saving settings on your dishwasher and let the dishes air-dry.

Use the ‘Off’ Switch

Save electricity and reduce global warming by turning off lights when you leave a room, and using only as much light as you need. And remember to turn off your television, video player, stereo and computer when you're not using them.It's also a good idea to turn off the water when you're not using it. While brushing your teeth, shampooing the dog or washing your car, turn off the water until you actually need it for rinsing. You'll reduce your water bill and help to conserve a vital resource.

Plant a Tree

If you have the means to plant a tree, start digging. During photosynthesis, trees and other plants absorb carbon dioxide and give off oxygen. They are an integral part of the natural atmospheric exchange cycle here on Earth, but there are too few of them to fully counter the increases in carbon dioxide caused by automobile traffic, manufacturing and other human activities. A single tree will absorb approximately one ton of carbon dioxide during its lifetime.

Get a Report Card from Your Utility Company

Many utility companies provide free home energy audits to help consumers identify areas in their homes that may not be energy efficient. In addition, many utility companies offer rebate programs to help pay for the cost of energy-efficient upgrades.

Encourage Others to Conserve

Share information about recycling and energy conservation with your friends, neighbors and co-workers, and take opportunities to encourage public officials to establish programs and policies that are good for the environment.

Appendix L: Relation between Culture, Health, Society and Environment

Relation between Culture and Health

Limited Alchol in Newari limbu culture-It will help in digestion and kill worm

Fasting in Nepali culture-will help during disaster, can stay without food

House cleaning during festival-Cleanness

House cleaning by cowdung-cleaness free from bacteria

Morning house clean- In Morning generally stable atmosphere thus less dust suspension in air

Bath in the sun-kill body bacteria

Generally ground floor is for storage- good to live in sun exposed floor, ground floor generally absorbed moisture from ground.

Use of copper utensil- kills bacteria

Generally eat Full cooked food- kill harmful bacteria

Eat fresh food-Good health practice

Food with less oil-good for health

Black dress in newari women- absorb heat to fight with cold climate

Cap in newari man- save from heat

Many festivals in Newar- Social meeting and interaction

Sun bath to newly born baby-kill bacteria

Boil rice nepali culture-healthy food

Wooden house/wood in house floor-good to avoid bone disease

Use of Sukul Carpet- Bad conductor of heat

Bhakari- newari food storage system-useful during crises

Patuki- makes SlimEat less sweet-good for health

Relation between Culture and Society

Arrange marriage- Social unity and cooperation

Belief in god goddess- Less social violence

Helping neighbors-social unity

Nakhatya (relative /social gathering)-social unity

Guthi- social unity-see below example

No dowry- good environment and less social pressure

Marriage in nearby community-less social cohesion

Relation between Culture and Environment

Ponds in Newari Village- Water harvesting

Stone tap – good quality drinking water

Wood beam and lock in traditional houses- resistant to earthquake

Worship in trees- conservation of forest

South faced house- bacteria free

Worship domestic animal- animal conservation

Use of human feaces as fertilizer- conservation of river

Worship on bamboo- conservation of soil erosion

Fire worship(hom) for rain- generate condensation nuclei to atmosphere-formation of cloud and rain

River worship as goddess-river conservation

(Adapted from Shakya, B. (2009). [Relation between Culture, Health, Society and Environment]. Unpublished raw data.)

Appendix M: Course Units of Environmental Education

Grade 1 Mero Serophero

Objective of the Course: Student will be able to develop knowledge, skill and attitude in social, health and environmental education.

Unit. Me little students; My face; My eye, nose, ear; I will clean; ; My habits; My food; My clothes; My house; My family; Our classroom; Our school; Types of animals; Types of plants; Land and water; Our village-past and present; Types of work; Sunlight and water; How to go; Which, when; Our flag

Grade 2 Mero Serophero

Objective of the Course: Student will be able to develop knowledge, skill and attitude in social, health and environmental education.

Unit. Lakhan Chaudhary; I come to know; Gyani Maya will do herself; From where food comes; Types of home; Gita's neighbour; Dolma's classroom; Sita's school; Our surrounding; Fulka wants to go; Places around us; Gopini and Dorje's village; Toda's sky; A visit to health centre; Our festivals.

Grade 3 Mero Serophero

Objective of the Course: Student will be able to develop knowledge, skill and attitude in social, health and environmental education.

Unit. Siri Gurung; Santa Bir's house; Dipa's garden; Ujeli will know; Maiya's school; Janaki help; Our food; BhajuRam went for tour

Grade 4 My Environment

Objective of the Course: Student will be able to develop knowledge, skill and attitude in social, health and environmental education.

Unit. Plants around us; Substances in our environment; Do all the animals reproduce?; Which type of animal eat food?; Plantation; Soil; Environmental balance; Flies; Food; Sensory illusions; Air; Drinking water; Fitness; Day and night; Energy; Pollution; Natural disasters.

Grade 5 My Environment

Objective of the Course: Student will be able to develop knowledge, skill and attitude in social, health and environmental education.

Unit. Characteristics of living beings; Types of plants; Types of animals; Land; Water; Air; How plants will prepare food?; Interdependence between living and non living being; Natural heritage; Population growth; Sanitation; Natural disaster; Energy for daily life; Measurement of things; Eclipse.

Grade 6 Population and Environment Education

Objective of the Course: Student will be able to develop knowledge, skill and attitude in social, health and environmental education.

Unit. Population and Environment; Environment: Introduction and Importance; Causes of the Change in the Environment; Effects of Change in the Environment; Environment Education and its Needs; State of Population, Natural Resources and Cultural Heritage; Comparative Situation of Natural Resources: Past and Present; Comparison of Natural Resources; Comparative Situation of Cultural heritage: Past and Present; Religious Places and Monuments; Inn, Pond and Stone Tap; Art, language, Literature and Music; Costumes and Musical Instruments; Folk Culture; Causes of Population Change and Environmental Degradation; Environmental Degradation; Deforestation; Flood; Landslides; Soil Erosion; Pollution;Effects of Population Growth and Environmental Degradation; Effects of Environmental Degradation; Deforestation; Extinction of Animals and Birds; Scarcity

of Water Supply; Shortage of Fuel; Change in Climate; Adverse Effect on Health; Degradation of Cultural Heritage; Desertification; Population Control and Environmental Conservation; Methods for Environmental Balance: Its Conservation and Promotion; Concept of Environmental Balance; Necessity and Importance; Conservation and Promotion of the Environment; Local Agencies Involved in Environmental Conservation and Population Control; Health Posts; Resource Centres; Service Centre; School; Village Development Committee; Municipality

Grade 7 Population and Environment Education

Objective of the Course: Student will be able to develop knowledge, skill and attitude in social, health and environmental education.

Unit. Introduction and Importance of Population and Environment; Our Population and Status of Natural Resources and Environment; Causes of Population Change and Environmental Degradation; Effects of Population Growth and Environment Degradation; Population Control and Environment Conservation; National Agencies Involved in Environmental Conservation and Population Control

UNITS RELATED TO ENVIRONMENT EDUCATION

Introduction and Importance of Population and Environment: Concept of Environmental factors, Natural Environment, Physical Environment, Biological Factor, Manmade Environment, Social and Economic Environment, Religious and Cultural Environment; Our Population and Status of Natural Resources and Environment; Status of Natural Resources; Importance and need of Water Resources; Status of Birds; Status of Birds; Ayurvedic Medicine and Fruits; Status of Cultural Heritage; Causes of Population Change and Environmental Degradation; Causes of Environment Degradation Deforestation; Flood; Landslide; Landscape; Urbanization; Industrialization; Pollution-air pollution, water pollution, sound pollution, soil

pollution'; Misuse of Insectiside; Effects of Population Growth and Environment Degradation; Environmental Factors-Forest, Land, Water, Air, Minerals, Animals; Effects of Environment Degradation; Sound and Cultural Aspect-Housing, Health, Cultural heritage; Natural Aspect-air, water, temperature, land, forest, animals; Economic Aspect-poverty, income, food, occupation; Population Control and Environment Conservation; Solution to Environment Conservation; Water Resource Conservation; Pollution Control; Cultural Heritage Conservation; Environmental Sanitation; National Agencies Involved in Environmental Conservation and Population Control

Grade 8 Population and Environment Education

Objective of the Course: Student will be able to develop knowledge, skill and attitude in social, health and environmental education.

Unit. Introduction and Importance of Population and Environment; Population, Natural Resources and Status of Cultural Heritage; Causes of Population Change and Environment Degradation; Impacts of Population Growth on Degradation of Quality of life; Methods of Population Management and Environment Conservation and Promotion; International Agencies Involved in Population management and Environment Conservation

UNITS RELATED TO ENVIRONMENT EDUCATION

Introduction and Importance of Population and Environment; Interaction between Population and Environment Human dependency on environment-air, water, soil, land, human; Effects of environment degradation on human; Effects of human activities on environment; Population, Natural Resources and Status of Cultural Heritage; Change of Natural and Cultural Heritage; Causes of Population Change and Environment Degradation; Causes of Environment Degradation; Economic Source ;Population

Growth; Natural Heritage Destruction; Cultural Heritage Destruction; Pollution; Impacts of Population Growth on Degradation of Quality of life; Natural Resources and Cultural Heritage Degradation; Effects of Natural Resource Degradation-deforestation, water pollution, land pollution, natural heritage degradation; Natural Heritage-Pollution of Religious places, Effects in Temples, Effects to Tourists; Methods of Population Management and Environment Conservation and Promotion; Public Awareness; Plantation; Forest Conservation; International Agencies Involved in Population management and Environment Conservation

Grade 9 Health, Population And Environment Education

Objective of the course: Student will be able to develop knowledge, skill and attitude in health, population and environmental education.

Unit. Concept of health, population and environment education; Demography; Causes and effects of population change; Natural resources; Religious and cultural heritage; Reproductive health; Environmental pollution and health; Disease, nutrition, Tobacco and drugs; Primary health care and safety education; Population management and environment conservation

UNITS RELATED TO ENVIRONMENT EDUCATION

Concept of health, population and environment education; Environment education; Importance of health, population and environment education; Scope of health, population and environment education; Interrelationship between different aspects of health, population and environment education; Natural resources; Introduction to Natural resources; Classification of Natural resources-perpetual resources, renewable resources, non-renewable resources; Importance of Natural resources; Conservational Use of Natural resources; Types and Status of Natural resource-air, water, surface water, ground water, land; Interrelationship between Natural resources and Man;

Conservation of Natural resources; Concept of Natural resource Conservation-Absolute Conservation, Relative Conservation; Effects caused by Human Activities on Natural resource; Major Activities for Natural resource Conservation; Environmental pollution and health; Concept of Pollution; Type of Pollution; Air Pollution; Water Pollution; Land Pollution; Noise Pollution; Pollution Management and Control measures; Management of Waste Water; Management of Solid Waste; Disease, nutrition, Tobacco and drugs; Primary health care and safety education; Population management and environment conservation

Grade 10 Health, Population and Environment Education

Objective of the course: Student will be able to develop knowledge, skill and attitude in health, population and environmental education.

Unit. Family Life Education; Quality of Life; Population, Environment and Development; Consumer Health; Safe Motherhood; Community Health; Status of Environment of Nepal; Biodiversity; Caring for Earth

UNITS RELATED TO ENVIRONMENT EDUCATION

Population, Environment and Development; Concept of Development Work; Development and Environment; Population, Environment and Development Activities; Sustainable Development; Status of Environment of Nepal; Eco-system by Geographical Region-mountain, hill, terai region; Religious and Cultural Heritage by Geographical Belt; Biodiversity; Concept of Biodiversity-ecosystem diversity, genes, species diversity; Biodiversity by Ecological Belts- mountain, hill, terai region; Rare Vegetation and Animal; Protected Animals and Birds; Adverse Effect on Biodiversity and Conservation Methods; Caring for Earth; Introduction to Caring for Earth; Man and Earth

Grade 10 Environment Science (Optional)

Objective of the course: Student will be able to develop knowledge, skill and attitude in environment.

Unit. Physical Aspect; Greenhouse effect; Ozone layer; Energy; Chemical Aspect; Hazardous waste; Biological Aspect; Animal; Natural Aspect; Wetland ecosystem; Social And Economic; Agriculture aspect; Health and sanitation aspect; Relationship between health and environment

GRADE 12. ENVIRONMENT EDUCATION

Unit. Introduction to Environment Education; Definition of Environment Education; Importance of Environment Education; Components or scope of Environment Education; Introduction to Environment; Meaning of Environment; Importance of Environment; Elements of Environment; Physical: land, water, air (atmosphere), energy; Biological: plants, animals, human being; Social/cultural; Ecology and Eco-System; Concept of Ecology; Concept of eco-system; Food chain, food web; Bio-chemical cycle, including oxygen cycle, nitrogen cycle, water cycle, carbon cycle; Interrelationship between human being and environment; Man and natural resources and inter dependence; Effects of environment degradation on human being; human activities and environmental degradation; Environmental Degradation/ Hazards; Concept of environmental degradation; Causes of environmental degradation; Natural cause-soil erosion, flood and drought, landslides, earth quake; Man made causes-deforestation, environmental pollution, industrialization/capitalism, urbanization, over exploitation of natural resources, over population; Effects of Environmental Degradation; Destruction of flora and fauna, including vegetation and endangered species; Extinction of water resources; Scarcity of energy; Changes in weather; Desertification; Loss of diversity ; Damaging agriculture cultural heritage; Economic crisis; Ozone depletion; Green house effects; Acid rain; Formation of black

hole; Deterioration of human heritage; Destruction of cultural heritage; Decrease in quality of life; Socio-cultural in a balance; Concept causes and Effects of Environmental Pollution; Air pollution; Water pollution; Soil pollution; Sound pollution; Radiation hazards; Waste disposal and pollutants; Mitigation Measures to Protect Environmental Degradation; Concept and importance of mitigation measures; General measures of mitigation to protect environmental degradation; Promotion of environment; and conservation education; Environmental stewardship : concept and measures; Maintaining natural balance; Pollution control; Environmental sanitation measures; Afforestation; Soil conservation; Population control/family planning; Proper human settlement; Environmental legislation and monitoring; Pollution Control; Concept of pollution control; Measures of pollution control; Education and management for solid waste reduction, reuse and recycling; Individual, collective and institutional efforts to pollution control; Control of air, water, sound and soil pollution; Education Environmental education for pollution control; Environmental Education and Sustainable Development; Concept of development and sustainable development; Development and environment; Need for sustainable development; Environmental stewardship and sustainable development; Role of environmental education in sustainable development; Environmental Situation in Nepal; Unique features of environment of Nepal; Major environmental problems in Nepal and their effects; Environmental management in Nepal; Environmental education in Nepal; National polygon environment and environmental education; Overview of Global Environmental Issues; Green House effects; Ozone-layer depletion; Acid Rain; Climatic changes; Loss of bio-diversity; Global environmental management; RIO declaration on environmental education; Overview of agencies involved in Environmental Education; Service oriented centres, including forest, agriculture,

health; Academic centres, including schools, colleges, university; Political units, such as wards, village development committees; Administrative units, such as Ministry of Population and Environment, Ministry of Education; International agencies, such as WWF(World Wide Fund for Nature), IUCN; National NGOs and voluntary organizations; Teaching Environmental Education in Schools; Introduction to national objectives regarding environmental education; Overview of school level curriculum on environmental education: objectives-contents-scope and sequence; School environment management; Methods of Teaching Environmental Education; Concept, selection and principles of teaching methods of environmental education; Concept focused teaching methods: lecture, demonstration, inquiry, experiments, question answer, seminar; Activity focused teaching methods: role-play, simulation games, audio-visual presentation/ reflection, informational materials development projects, creative arts/ performances, and environmental games; Materials and Media for Teaching Environmental Education; Concept, importance and selection of materials and media for environmental education; Various types of materials and media used in teaching environmental education; Criteria for selection of educational materials and media; Preparation and use of materials for teaching environmental education; Sources of educational materials and media; Planning and Evaluation of Teaching Environmental Education; Concept and importance of planning the thatching; Steps of planning environmental education teaching; Types of planning environmental education teaching; Various methods of evaluation of teaching of environmental education; Test construction and making schemes.

BACHELOR OF EDUCATION (B. ED.)

ENVIRONMENTAL EDUCATION I

This course is designed to introduce the prospective secondary school teachers the fundamentals of Environment Education

Objectives of the study. On the completion of this course students will be able to: Explain the scope and importance of the environment and environmental education; Define and describe basic concepts about atmosphere, biosphere, lithosphere and hydrosphere; Describe various components and types of ecosystem

Explain balance in nature along with carbon cycle and nitrogen cycle; Describe the various resources and types of energy; Explain the causes of degradation of natural resources and measures of conservation; Explain pollution, pollutants and contaminants; Explain sources and types of non-communicable diseases; Explain sources and types of communicable diseases (air, water and food borne and sexually transmitted) and measures for their prevention and control; Explain the importance of personal hygiene and keeping the surrounding clean; Explain about major religions and social custom and their impact on environment; Identify cultural heritage and measures for their conservation

Unit I Introduction to Environment and Environmental Education

Define Environment and Environmental Education, Scope of Environment and Environmental Education, Importance of Environment, Natural-Physical and Biological, Development Activities (industry-land-use, hydro-power, road mining etc) Cultural Aspects of Environment, Health and Sanitation

Unit II Components of Natural Environment

Atmosphere, Introduction to Atmosphere, Characteristics and Function of atmosphere Composition of Atmosphere, Major layers of Atmosphere, Troposphere, Stratosphere, Mesosphere, Thermosphere, Biosphere, Introduction, Interrelationship among Plants, Animals and Micro-organisms, Lithosphere, Introduction, Rocks and Minerals, Soil

and its Profile, Organic Matters in Soil, Macro and Micro Nutrients in Soil, Hydrosphere, Introduction, Hydrological Cycle, Evaporation and Condensation, Ground Water, Run-off and Infiltration, Properties of Water, Lotic Environment-Rivers and Streams, Lentic Environment-Lakes, Ponds and Marshes, Importance of Water for Existence of Living Beings

Unit III Ecosystem

Introduction, Eco-system, Ecological Factors, Food chain, Food Web, Population and Community (plants and animals), Interrelationship of biomes, Types of Eco-system, Forest, Introduction and components of forests, Component of a forest, Flora and fauna, Producers, consumers and decomposer, Energy flow and nutrient circulation, Forest and its products, Ponds, Components of a ponds, Limiting factors, Flora and fauna, Characteristic features of a healthy pond, Relation between pond and environment, Importance of pond to the locality

Unit IV Biogeochemical Cycle

Introduction to Homeostatis, Carbon cycle, Nitrogen cycle

Unit V.Resources

Natural Resources-Definition, status, degradation and conservation, Land, Water Forest and Wild life, Aquaculture, Mineral, Impact of man-made resources on environment, Energy, Concept and type, Sources of Energy, Status of Energy Sources, Relationship between deforestation and household fuel, Alternate Sources of Energy-solar, wind, geothermal, nuclear, biogas, Degradation of Resources (trends, causes and consequences), Conservation of Resources

Unit VI Pollution Introduction, Types of Pollution, Pollutants, Threshold and Control Measures, Water Pollution, Land Pollution (including solid waste or domestic waste), Air Pollution, Noise Pollution, Radiation, Contaminant

Unit VII Health and Hygiene

Communicable and noncommunicable diseases, Communicable diseases, Sources (air, water, food borne and sexually transmitted diseases), Types (Bacterial, Viral, Parasitic), Bacterial (Tuberculosis, Pneumonia, Gonorrhea, Syphilis), Parasitic (Dysentery, Diarrhoea, Worms), Prevention and control measures, Reasons for pollution and contamination of air, water, food borne, V.D. and their impact on human health, Measures for prevention and control of air, water borne and V. diseases, Some Non-communicable diseases and their preventive measures e.g. Cancer, Cardiac, Diabetes and mental disease), Importance of personal hygiene for human health and keeping surrounding clean

Unit VIII Cultural Heritage of Nepal

Major religions and their impact on environment, Hinduism, Buddhism, Islam, Christianity and others, Social customs, Music and musical instruments, Festivals, Monuments, languages and costumes and ornaments, Measures for a conservation of cultural heritage

ENVIRONMENTAL EDUCATION II

This course is designed to introduce the prospective science teachers the fundamental of Environment Education

Course objectives. On the completion of this course student will be able to- Explain the scope and importance of environment and environmental education; Describe the elements of environment and ecosystem; Describe the natural resources of Nepal and develop strategies for their conservation and management; Describe the major natural disaster in Nepal; Explain the causes and consequences of natural disaster and ways of their prevention; Explain the impact of environmental degradation on agriculture and measures for sustainable agricultural development

Explain the importance and status of forest resources; Describe depletion of forest resource and its impacts on environment; Explain the types of pollution, their impact on environment and their effects on resources and quality of life; Explain the trends in population growth in SAARC countries and its effects on resources and quality of life Appreciate the need for population management; Appreciate the concept of sanitation, causes and effects of poor sanitation in Nepal; Describe the sanitation activities in Nepal and develop sanitation strategies at local level; Appreciate the importance of cultural heritage and explain measures for their conservation; Explain the main social problems and describe their prevention and control measures; Explain the policies of HMG on environment and environmental education

Unit I Contents

Introduction to Environment and its Importance; Definition Ecology and Scope of Environment and Environmental Education; Definition; Scope; Agriculture; Forest; Health and Sanitation; Industry; Hydrology; Meterology; Environmental Elements; Natural: physical and biological;Physical:-Soil, Water, Air (temperature, heat); Biological;:-Social and Cultural; Anthropogene: Social and Cultural; Ecosystem; Aquatic ; river and ponds); Terrestrial; Grassland; Mountain; Forest; Interrelation between Environment and Living-beings (Ecology)

Unit II Status of Natural Resources in Nepal

Introduction to Natural Resources; Types of Natural Resources (forest, soil, air, water and minerals); Status of Nepal's Natural Resources; Forest; Medicinal and Other Useful Plants (including aquatic); Wild life; Water; Minerals; Soil; Air-Energy Sources; Causes of Depletion and Degradation of Natural Resources; Uses and conservation of Natural Resources Including Endangered Species; Alternative Sources of Energy

Unit III Natural disaster-Causes and Remedies

Natural Disasters in Nepal; Landslides-Causes, control measures and impact on life and economy; Floods-Causes, control measures and impact on life and economy Earthquake-Principles, precautionary measures and impact on life and economy Drought-Causes, control measures and impact on life and economy; Prevention of Natural Disaster

Unit IV Agriculture and Sustainable development

Agriculture practices in Nepal (traditional and modern); Impact of modern agricultural practices on environment (chemical fertilizers, insecticides and pesticides, irrigation and drainage); Impact of environment degradation on agriculture; Sustainable and profitable agricultural development (organic farming); Genetic erosion of crop

Unit V Biodiversity Conservation Measures

Forest Resources; Depletion of Forest Resources and its Impacts on Environment Community Forest; Watershed management and its importance for forest conservation; National Parks and Reserves and Conservation Areas; Management of National Parks, Reserves and Conservation areas; Genetic Resource Conservation Ways and means of sustainable development of forest resources; Gene Bank, Botanical & Zoological garden; Tissue Culture; Captive bleeding; Legislation Conservation education

Unit VI Pollution

Types of Pollution (air, water, land, noise); Air Pollution; Types; Sources and Effects of Air Pollution; Natural Sources (Smoke, Gases, Forest-fires, Volcanic gases) Anthrogenic Sources; Industries, Power palnts, Industrial Effluents, Organic Waste

Automobile Exhausts; Effects of Air Pollution; Reduction of visibility (traffic hazards); Reduction of Solar Radiation; Green house Effects; Ozone Layer Depletion Fogging and Precipitation; Health Hazards; On plants; Air Pollution Control and Measurement Techniques; Population Survey of Air Pollutants; Water Pollution and Control Measures; Introduction; Water Quality Parameters and Standards; Types of Water Pollution; Sources and Effects Water Pollutants; Wastes, Effluents and Sewage Disease causing Agents, plants, Nutrients, Synthetic Organic Compounds, Oil, Inorganic Chemicals and Minerals, Sediments, Radio-active Materials and Thermal Pollution; Effects on Health, Agriculture & Natural Resources; Population Survey of Water Quality; Water Pollution Control Measures; Land Pollution & Control Measures; Introduction; Types of Soil Pollutants; Sources of Soil Pollution Pesticides; Insecticides; Solid waste; Fertilizers; Effluents; Effects on Health, Agriculture and Natural Resources; Population Survey of Soil; Noise Pollution & Control Measures; Introduction; Sources and Effects of Noise Pollution Vehicles; Industries; Instruments and Equipments; Others (domestic and social violence); Effects on Human, Plants and Animals

Unit VII Population and Environment

Trend in Population; Trend of population growth in SAARC countries; Population & population growth in Nepal with respect to SAARC countries; Causes of Uncontrolled population growth in Nepal; Illiteracy/ Lack of population education Economic Conditions; Social customs and traditions; Religious belief and values High infant mortality rate; Lack of health services and facilities; Consequences of Population Growth on Resources; Air; Water; Forest; Land; Cultural heritage; Impact of Population Growth on Quality of Life; Food; Shelter; Education; Health (physical and mental); Social and Cultural; Need for Population Management; Maintaining a

balance in nature; Sustainable use of resources; Improving quality of life; Efforts to be made for Population Management; Education/Population education (forma, non-formal and women); Family welfare, maternity and child care; Efforts made by NGOs, INGOs and Gos for population management

Unit VIII Environmental Education

Concept of Sanitation; Sanitation in Nepal's towns and villages; Causes and effects of poor sanitation; Sanitation activities; Sanitation programs for urban and rural areas and their awareness (including roles and responsibilities of schools and communities)

Unit IX Cultural Heritage and its Preservation

Cultural Heritage of Nepal; Importance of Nepal's Cultural heritage; Identity to the World Outside; Attraction for Tourism; Source of Income; Threats to Cultural Heritage; Industrial pollution; Lack of Conservation measures; Lack of awareness; Modernization; Measures for Conservation of Cultural Heritage

Unit X Social Problem

Current Problems and Issues Affecting Quality of Life; AIDS: Structure and life pattern of microbes causing AIDS and HIV on people Causes and symptoms and characteristics Precautionary preventive measure; Drug Abuse; Nature and Extent Problems of drug abuse, rehabilitation of drug abuse, other measures to control drug abuse; Alcohol; Adverse impact; Efforts made by Government and other agencies to control; Tobacco, Effects of tobacco on health; Measures to check the use of tobacco; Enforcement of law

Unit XI Efforts on Environmental Management

National policies on environment and development; Efforts made by government agencies; Efforts made by non-government agencies (INGO, NGO)

Practicals

Summarize the climatic data (in ombro-thermic graph) of different station in Nepal; Compare different parameters and human population growth in SAARC countries; Enumerate flora of a particular area; Enumerate fauna of a particular area; Describe plant communication of any area(quantitative analysis of vegetation by plot and plotless method); Determine diversity and species richness of different plant communities; Measure the tree size; Determine soil texture, soil moisture, water holding capacity, soil pH, humurs content and water soluble salts

Estimate dissolved oxygen in water; Determine effect of industrial effluent on crop seed germination; Visit and report the state of major cultural heritage in Nepal; Survey the social problems in nay village and prepare a report; Determine environmental impacts of any industry or development activities; Visit different types of ecosystem and record the components; Compile crop productivity data of Nepal for the last five years; Visit any national park and record the efficiency of conservation measures.

Appendix N: An Example of Data Analysis

Nistha (Pseudoname)

Note Taking	Coding
Native place is in the village. Grew up in village	Grew up
Now living in Kathmandu since two years	in village
During childhood, used to travel a lot over there	Nature experience
with her family members,	So love
played in the garden	to plant
have their own farm	Now also
plant lots of flowers, hike in the forest	doing it
all these little things playing with the nature	Love the native
taught her a lot about seeing and loving the world	place
around her	Wants to do for
that has stayed with her until now	that place
main inspiration behind everything.	
missed my place very much.	
If get help, wish to go there, plant trees, teach	
community people about the importance of	
forestation	

Memoing

Nature experience led her to do plantation, Doing since childhood, so wants to do now also Love for her place

Appendix O: Database of Environmental Education Related Organizations in Nepal

Kathmandu Environmental Education Project

Nepal Forum of Environmental Journalists - Advocacy, Community Development , Conservation , Ecotourism , Education , Network , Research , Training , Women Gender

Nepal Heritage Society- Conservation, Education , Network , Training

Nepal Participatory Action Network - Advocacy , Community Development , Conservation , Ecology Biodiversity , Energy , Network , Poverty Alleviation , Public Health , Research , Women Gender

Nepal Wetlands Society

Society of Environment Journalist - Advocacy, Community Development , Conservation , Ecotourism , Education , Network , Research , Training

Society of population & Environment Journalist- Advocacy , Community Development , Conservation , Education , Network , Training

The Centre for Environment Education- Advocacy, Conservation , Ecotourism , Education , Network , Research , Training

The Forum for Environmental management and Research- Advocacy , Community Development , Nature Awareness , Network , Research , Training , Waste Pollution

The Institute for the Himalayan Conservation-Nepal - Advocacy , Agriculture , Community Development , Ecology Biodiversity , Ecotourism , Forestry , Network , Poverty Alleviation , Public Health , Water , Women Gender

The National Trust for Nature Conservation - Community Development , Conservation , Ecology Biodiversity , Ecotourism , Education

The Small Earth Nepal - Advocacy , Community Development , Earth Science ,Ecology Biodiversity , Ecotourism , Education , Energy , Nature Awareness , Network , Research , Training , Other

Volunteers for Environment and Education Program Nepal - Advocacy , Conservation , Ecotourism , Education , Network , Training

Wetland Friends of Nepal - Conservation , Ecology Biodiversity , Nature Awareness , Network , Research , Water , Wildlife

Women in Environment - Advocacy , Community Development , Conservation , Ecotourism , Education , Network , Training

Youth Awareness Environment forum - Advocacy , Conservation , Ecotourism , Education , Network , Training

Bird Conservation Nepal - Advocacy , Ecology Biodiversity , Ecotourism , Network , Training , Water , Wildlife

Concern for Children and Environment Nepal - Advocacy , Community Development , Network , Public Health , Water

DANFE NEPAL- Advocacy , Community Development , Ecology Biodiversity , Network , Research , Training , Women Gender

Environment and Child Concern - Advocacy , Community Development , Conservation , Ecology Biodiversity , Network , Research

Environment Camps for Conservation Awareness - Advocacy , Community Development , Conservation , Earth Science , Ecotourism , Education , Energy , Nature Awareness , Network , Research , Training , Water

Forum for Protection of Public Interests - Advocacy , Community Development , Education , Network , Research , Training , Women Gender , Other

Green Camp-Nepal - Advocacy , Conservation , Ecotourism , Education , Network , Research , Training

Human Welfare and Environment Protection Centre - Community Development , Conservation , Ecotourism , Education , Network , Training

Institute for Population, Environment and Development- Community Development , Conservation , Ecotourism , Education , Network , Research , Training

(Adapted from database of EE related organizations among East Asian countries)

Appendix P: Frame of Elements of Axial Coding

Element	Description
Phenomenon	This is what in schema theory might be called the name of the schema or frame. It is the concept that holds the bits together. In grounded theory it is sometimes the outcome of interest, or it can be the subject.
Causal conditions	These are the events or variables that lead to the occurrence or development of the phenomenon. It is a set of causes and their properties.
Context	Hard to distinguish from the causal conditions. It is the specific locations (values) of background variables. A set of conditions influencing the action/strategy. Researchers often make a quaint distinction between active variables (causes) and background variables (context). It has more to do with what the researcher finds interesting (causes) and less interesting (context) than with distinctions out in nature.
Intervening conditions	Similar to context. If we like, we can identify context with *moderating* variables and intervening conditions with *mediating* variables. But it is not clear that grounded theorists cleanly distinguish between these two.
Action strategies	The purposeful, goal-oriented activities that agents perform in response to the phenomenon and intervening conditions.
Consequences	These are the consequences of the action strategies, intended and unintended.