CHAPTER II

REVIEW OF RELATED LITERATURE

This chapter presents the details of the review of related literature.

Environmental Education is one of the most recent advanced and fast growing area of education research. It is observed that major work in the field of Environmental education has been done since 1980 and an attempt has been made here to review the studies related to the present topic in a systematic way.

The studies reviewed are presented under the following headings.

2.1 Studies on Environmental Attitude and Attitude towards Environmental Education in India

2.2 Studies on Environmental Attitude and Attitude towards Environmental Education in Iran and other countries

2.3 Studies on Environmental Awareness in India

2.4 Studies on Environmental Awareness in Iran and other countries

2.1 STUDIES ON ENVIRONMENTAL ATTITUDE AND ATTITUDE TOWARDS ENVIRONMENTAL EDUCATION IN INDIA

Deopuria (1984) made a comparative study of teaching of Science through environmental and traditional approach in schools of Madhya Pradesh. The objectives were to compare the effectiveness of two different approaches in developing environmental awareness, attitude towards environmental education and cognitive achievement in science among students. The study revealed that the environmental
approach group obtained higher achievement scores due to teaching of science through environmental approach.

Gupta (1986), in his study, attempted to develop a tool, which can measure the attitude of teachers towards EE. The data for his study were collected from 150 teachers working in primary and secondary schools and junior colleges. The study showed that the teachers had favourable attitude towards EE but the degree of favourableness was the highest among college teachers and the lowest among primary school teachers. The study identified that crowded classroom, lack of time for proper planning of activities and loss of interest in the absence of follow up actions as stumbling blocks to the implementation of EE program.

Biswas (1990) conducted a study on attitude of secondary school students towards environment in Itanagar. This study revealed that:

- all the students have a positive attitude towards Environment.
- there is a significant difference in the attitude towards environment between boys and girls. Boys are more significantly positive towards environment than the girls. There is a significant difference in the attitude towards environment between rural and urban students. Urban students are more significantly positive towards environment than the rural students.

Shahnawaj (1990) conducted a study on Environmental Awareness and Environmental Attitude of Secondary and Higher Secondary School Teachers and Students in Rajasthan. The study revealed that:

- 95% teachers and 94% students possessed positive environmental attitude.
• the environmental trained teachers and untrained teachers did not differ in their attitudes.
• teachers had higher awareness of the environment than students.
• trained and untrained teachers did not differ on environmental awareness.
• girls possessed significantly high awareness of the environment than boys.

Praharaj (1991) conducted a study on Environmental Knowledge, Environmental Attitude and Perception regarding Environmental Education among Pre-service and Inservice Secondary School Teachers in Puri District of Orissa. The study revealed that:
• the level of environmental knowledge was found low among pre-service teachers, although conceptual knowledge was moderate.
• among the inservice teachers, environmental knowledge was moderate and factual knowledge about the environment was low.
• both the groups differed significantly in their level of environmental knowledge. They had a favourable attitude towards environmental education although the inservice group had a higher level of attitude than that of the pre-service group.
• there was moderate correlation between environmental knowledge and environmental attitude.
• teachers perceived that environmental education could be a core part of social science and general science also and science subjects in secondary school as well mass media have a potential role to play in imparting environmental education.
Ananth (1993) studied environmental attitude of 10th standard students of Bangalore City in relation to their sex, socio-economic status and environmental knowledge. The total sample size was 483 of which 310 were boys and 173 girls. An Environmental Attitude Scale and an Environmental Knowledge Test were constructed with 25 and 91 items respectively. Two-way ANOVA, t-test, correlation and regression were used for analysis. The major findings were: (1) differences in sex do not account for significant differences in environmental attitude; (2) differences in levels of socio-economic status did account for differences in environmental attitude; (3) there was no significant interaction effect of sex and socio-economic status on environmental attitude; (4) there was no significant interaction effect of socio-economic status and environmental attitude, and (5) environmental knowledge was found to be significant predictor of environmental attitude.

Rou’s (1995) study on awareness and attitude of teachers and students of high school towards environmental education in Jabalpur district revealed that:

- the male and female teachers differed significantly on their environmental attitude, female teachers exhibited better environmental attitude than male teachers.
- the government school teachers and the private school teachers were found to differ significantly in their Environmental Attitude in favour of the former group.
- The urban and rural parents differed significantly in favour of the former group in their attitude towards environmental problems.
A study by Jinarajan (1999) on environmental awareness and attitude towards environmental education of student teachers in Bangalore city revealed that:

- female student teachers had more favourable Attitude towards Environmental Education than male student teachers.
- medium of instruction had effect on student teachers attitude towards environmental education. Kannada medium student teachers had more favourable attitude towards environmental education.
- qualification or stream of studies (arts/science) had no impact on student teachers’ attitude towards environmental education.

Dinakara (2000) conducted a study on environmental awareness, attitude and teaching practices of elementary school teachers of Mysore District and the study revealed that:

- there was significant difference between urban and rural school teachers in their environmental awareness and environmental attitude. Urban school teachers were superior than rural school teachers in their environmental awareness and environmental attitude.
- there was no significant difference between urban/rural school teachers in their teaching practices.
- there was no relationship between environmental attitude and classroom practices.
- there was no significant difference between (i) the urban and rural school teachers and (ii) Government and private school teachers in their classroom practice.
there was no significant difference between government and private school teachers in their environmental attitude.

there was significant difference between government and private school teachers in their environmental awareness. Private school teachers had higher environmental awareness than government school teachers.

there was a considerable relationship between environmental awareness and environmental attitude.

A study by Tripathi (2000) entitled Comparative Study of Environmental Awareness of Students Studying in Central Schools and Other Schools at 10+ level in Uttar Pradesh, revealed that:

the difference between boys and girls students of central schools was found to be significant with respect to their environmental awareness. Boy students were found significantly higher than girl students.

there was significant difference between environmental awareness of science and arts students of central schools. Arts students were found significantly higher than science students with respect to their environmental awareness.

there was no significant difference between the students studying in central schools and other schools having same syllabus.

there was no significant difference in environmental awareness between the students studying in central schools and other schools having different syllabus.
Shaila (2003) conducted a study on effect of background variables on the environmental attitude of secondary school teachers in Bangalore city. The study revealed that:

- there is no significant difference in the environmental attitude of male and female, science and arts, rural and urban, married and unmarried secondary school teachers.

- there is no significant difference in the environmental attitude of teachers belonging to different types of school management, dropout size of secondary schools, joint and nuclear families and different size of families.

- there is a significant difference in the environmental attitude of senior and junior secondary school teachers; junior teachers have more favourable attitude.

- there is a significant difference in the environmental attitude of secondary school teachers who belong to high and low socio-economic status (SES) levels.

Chethana’s (2003) study on effect of background variables on the environmental attitude of 9th standard students in Bangarpet and KGF areas found the following points.

- There is a significant relationship between socio-economic status and environmental attitude.

- There is no significant difference between the background variable such as locality, sex, type of school management each separately and environmental attitude of 9th standard students.
• Different level of socio-economic status does not account for significant difference in the environmental attitude of 9th standard students.

Abraham and Arjunan (2005) conducted a study on Environmental Attitude and Pro-environmental Behaviour among secondary school children of Kerala. The following are the major conclusions of the study:

• Gender difference and rural / urban difference was noticed with respect to the environmental attitude of secondary school children towards environment; boys possess better attitude than girls, urban subjects possess better attitude than rural subjects.

• There is no significant difference between boys and girls; rural and urban students in their pro-environmental behaviour.

• There exist low, but positive significant correlation between environmental attitude and pro-environmental behaviour of the total sample and two sub-samples, viz., girls and rural subjects of the secondary school children; whereas the degree of relationship was found to be positive and substantial in the sub-samples of boys and urban students.

• There is a significant difference between boys and girls in the degree of relationship between the environmental attitude and pro-environmental behaviour; the relationship being more markedly visible in boys.

• Rural and urban subjects do not differ significantly with regard to the relationship between environmental attitude and pro-environmental behaviour.
Abraham and Arjunan’s (2005) study on “environmental interest of secondary school students in relation to their environmental attitude” made use of a representative sample of 624 secondary school students of Kerala, selected on the basis of “stratified random sampling technique”. The sample consisted of 306 boys and 318 girls, the rural and urban representation being 339 and 285 respectively. The following are the major conclusions of the study.

- Only a small proportion of the secondary school students have high level of interest in environmental matters.
- Gender and locale (rural and urban) difference was noticed with respect to environmental interest of secondary school students, boys are more interested in environmental matters compared to girls and urban subjects having more interest in environmental matters compared to their rural counterparts.
- There existed high, positive and significant correlation between environmental interest and environmental attitude of the total sample as well as the subsamples based on gender and locale.

Rout and Agarwal (2006) conducted a study of environmental awareness and environmental attitude of students at high school level. The objectives of the study were: to know the environmental awareness and environmental attitude of the male and female students of science and non-science streams belonging to rural and urban backgrounds studying in class X of different schools of Moradabad city. The findings of the study are:
• The students of science stream have more environmental awareness and environmental attitude than the students of non-science stream.

• The students belonging to urban background are comparatively better in terms of their environmental awareness and environmental attitude as compared to the students belonging to rural background.

• The male and female students do not differ significantly in terms of their environmental awareness and environmental attitudes.

Kumar and Patil (2007) conducted a study on influence of environmental education on environmental attitude of the postgraduate students. The sample for the study comprised of 120 students studying in Post-Graduation Departments of Karnataka University, Dharwad. The experimental group comprised of 60 students studying environmental course in their respective departments. These students had a standard course on environmental pollution and related issues as a part of their course. In this course they were taught broadly different types of pollutions, causes for pollution, its influence on the physical and mental health of the masses, and strategies to overcome the problem of pollution. The environmental education students were drawn from the department of science such as Botany, Zoology and Geography. The non-environmental education students were drawn from the departments of arts such as Kannada, English and History. These students represented the control group and they had no standard environmental education course as a part of their course. The study revealed that:
• standard Environmental Education course influences the attitude level of the students towards environmental pollution and related issues.

• there is no significant difference between male and female students in their attitude towards environmental pollution and related issues.

2.2 STUDIES ON ENVIRONMENTAL ATTITUDE AND ATTITUDE TOWARDS ENVIRONMENTAL EDUCATION IN IRAN AND OTHER COUNTRIES

Euler (1989) undertook a comparative study of the effectiveness of a formal versus non-formal education program for male and female sixth grade students’ environmental knowledge and attitude. The objective is to examine the effectiveness of environmental education programs on the environmental knowledge and attitudes. The findings of the study are:

• Both the experimental groups, the formal (A) vs. the control, and nonformal (B) vs. the control, demonstrated significant differences in knowledge and in three attitudes of EAS scales (nature centers, plants, wildlife).

• There was no significant difference in gender or any other variables.

• There was no significant interaction in any other variables.

• Post hoc analysis revealed that the formal treatment group had significantly higher scores on the knowledge test than both the non-formal and control groups, they also had significantly higher scores than the control groups on the two of EAS (plants, wildlife).
The nonformal treatment group scored significantly higher than the control group on EAS (plants, wildlife).

Yount and Robert (1989) studied the factors influencing environmental attitude, the relationship between environmental attitude defensibility and cognitive reasoning level. The objective of this study was to investigate the relationship between factors believed to contribute to the formation of an environmental attitude by college non-science majors and also to know the effect of an environmental studies course on environmental attitude decision, and the possibility of linkages between affective and cognitive domains. The findings of the study are:

- students who attend an environmental studies class did not significantly change in their attitude when compared to the control groups, but did exhibit increase in their count leaves of defensibility.

- students in the environmental studies course with higher cognitive reasoning scores were more prone to increase total defensibility as a result of course and to change attitude. These data imply a linkage between cognitive and affective domains in the environmental attitudes decision process.

Trotter, Patricia and McNally (1990) conducted a study on environmental attitude of participants in the Oklahoma 4-H Philmont Outdoor Adventure Program. The objective of this study was to determine if differences existed in the environmental attitudes of current and past participants in the Oklahoma 4-H Philmont Outdoor Adventure Program. The findings of the study are:
• Demographic characteristics did differ in the participation of subjects; the age of subject and family income of male subjects.
• The participants had a positive attitude towards the outdoors, both at entry level and at completion of experience.
• Pre-test scores indicated that adults had better positive attitude towards outdoors than youth.

Gaylen’s (1990) study purported to measure parental attitudes towards environmental education and also to find out which demographic factors relate to which attitude concerning environmental education and what specific environmental topics affect overall attitudes. The study was conducted in five different socio-economic communities that were chosen randomly from a tri-country area of Illinois to have 100 parents of elementary school children. They answered 69 survey questions of environmental attitude inventory with additional 8 demographic questions. Parents answered with ‘yes’, ‘no’ or ‘uncertain’ and chose specific demographic levels that best described themselves for 8 demographic questions. The return rate was exactly 50% for changing attitudes towards plans and plants study and for changing classroom practice.

Keen (1991) examined the influence of the earth education program ‘sunship earth’, on ecological knowledge and environmental attitudes of 5th and 6th grade classes. Pre and post program questionnaires were administered. Students who attended the ‘sunship earth’ program increased their ecological knowledge significantly. Participation in the ‘sunship earth’ program did not result in better positive environmental attitudes. Part of the success of the sunship earth program is
attributed to the setting in which it occurs and the techniques used to develop ecological concepts.

Benedek and Kohl (1991) conducted a study on Environmental Education and training in Hungary. In Hungary, the educational system is responsible for developing an up-to-date and enlightened attitude toward the environment. Elementary schools have made the greatest advance in Environmental Education (EE) during the past 10 years. Conditions for EE are most favourable in the gymnasium: secondary vocational education has the greatest lack of EE in its curricula. A development project for EE in secondary vocational training has designed an ecological and environmental protection curriculum including general and specific requirements and some elements of curriculum content. Recommendations for teacher training and postgraduate training have also been made. Three pilot programs show correlations between environmental protection and technology. They illustrate the role of the Paks nuclear power plant in EE, an experiment in EE in the Baktay Ervin Gymnasium and vocational secondary school for water management in Budapest (Hungary), and an experiment in EE in the Petrik Lajos vocational secondary school for industrial chemistry in Budapest. Comprehensive analysis proposals are for the modernization of Hungarian EE and solutions to problems arising within the framework of international collaboration.

Hwa (1992) conducted a study on Appraising Environmental Quality in Science Education among adolescent students in Malaysia. This study reported the effect of sensitisation on randomly selected Malaysian secondary school students’ (n=90) attitudes, commitment and knowledge toward environmental issues. Findings
indicated that: students were favourably committed to environmental issues despite a poor grasp of environmental knowledge, and conceptual knowledge is a reasonable predictor of environmental behaviour.

Hutchinson (1994) conducted a study on Creativity, Self-actualisation and Androgyny: a co-relational study in relation to Environmental Attitude and Integration of Self. This study sought relationship among the variables of androgyny, creativity, self-actualisation and environmental attitude. Concurrent correlation was used regarding the variables of androgyny, creativity, self-actualisation and environmental attitude. A positive relationship was found among the factors.

Berberoglu and Tosingolu (1995) developed a four-dimensional Environmental Attitude Scale (EAS) on a sample of 639 university students in Turkey. Factor analyses indicated that the scale measures four-dimensional traits such as attitudes toward environmental problems. Differences in the factor structures between this study and Western studies may reflect cultural differences.

Woitowicz (1995) conducted a study on health and environmental protection with the purpose to provide an overview of the outcomes associated with a psychometric survey of students’ environmental attitude. A review of relevant literature shows that student attitudes are important components in the development of knowledge and behaviour-based interventions. A 16 item questionnaire focused on subjects’ perception of social versus individual responsibility for environmental protection subjects (N=7,834) were drawn from elementary, middle, high school, and University student populations in Alabama and North Carolina. Data indicated that
subjects from different states had different environmental attitude predispositions and that subjects from varied ethnic backgrounds and difference grade categories had significantly different attitudes. Subjects were aware of the link between environmental hazards and health, and felt that individuals are responsible for exercising the control necessary to effect change. In addition, subjects believed that environmental protection must start with the individual but collective effort at the societal level is necessary for success.

Ndayitwayeko (1995) undertook a study on Assessment and comparison of environmental knowledge and attitudes held by 13th grade general and technical education students in the Republic of Burundi. Sample size was 559 students of 28 schools. Three instruments were developed to test respondent’s environmental attitude and to gather information about students’ socio-demography of environmental information, type of school, parents occupation and level of education. The major findings were: (1) Significant differences existed between respondents environmental knowledge and attitudes towards environment with regard to five most compelling environmental issues in Burundi-Human population, natural resources water quality, ecological principles and global environmental concerns. (2) The general education students outscored their counterparts on the average. (3) The levels of environmental knowledge and attitudes towards the environment were relatively low and very close for both the groups and (4) Significant differences were found between respondents’ environmental knowledge and attitude towards environment based on students’ socio-demographic variables employed in this study.
Leeming et al. (1996) conducted a study on effects of participation in class activities on children’s environmental attitude and knowledge. Eight environmental related activities were chosen to know the environmental attitudes and knowledge of participants. The program had a significant positive effect on attitude toward the environment, but did not influence knowledge of environmental issues.

Prelle and Solomon (1996) conducted a study on young people’s general approach to environmental issues in England and Germany reported on a study of adolescent students’ opinions concerning environmental issues. Students from rural and urban areas in England and Germany answered questionnaires covering environmental issues, their individual lifestyles. Questionnaires including free writing sections. Attempts to understand the students’ “umweltbewusstsein” (the whole range of a person’s knowledge, attitude and behaviour).

Chan (1996) conducted a study on environmental attitude and behaviour of secondary school students in Hong Kong, which describes the environmental attitude of students in Hong Kong and their readiness to engage in pro-environmental behaviour that could involve change in personal lifestyle. Students’ over-optimism towards technological development and the perceived importance of the benefits of modern consumer goods were major factors that contradicted their concern for the environment. Gender was also significant.

Smith and Smith (1997) conducted a research study entitled “Environmental Education in Illinois and Wisconsin: A Tale of Two States”. This study examines Illinois public school teachers’ preparation to infuse Environmental Education concepts into their teaching and their Attitude toward Environmental Education and
compares the findings with those from Wisconsin teachers. Findings indicated that teachers needed more preservice and inservice training, had largely positive attitude, but did not spend much time teaching about the environment or environmental issues.

Mansaray and Ajiboye (1997) conducted a study on “Environmental Education and Nigerian Students’ Knowledge, Attitudes and Practices (KAP): Implication for Curriculum Development”. Nigerian secondary students were surveyed regarding selected environmental issues to determine prevailing knowledge, attitudes and practices. Students performed very poorly in the knowledge component of the questionnaire and demonstrated negative attitude towards issues. Students also indicated practices that were harmful to a healthy environment. The implications of these findings for developing an environmental education curriculum for Nigeria have been discussed.

Reid and Sadi (1997) conducted a study on Jordanian and British primary school children’s attitude towards the environment. If explored the important but neglected field of primary school children’s attitude toward the environment, particularly toward issues of pollution, waste, and plants and animals. Using a scale in Arabic and English. The study showed that environmental education programs produce only slightly positive results.

Manjengwa (1998) conducted a study on Environmental Education for sustainable development in secondary schools in Zimbabwe. This study indicated gender differences in knowledge, attitude, problem-solving skills, and environmental activities (n=555) of secondary school students, girls generally had more environmental knowledge than boys. Attitude toward environmental issues were
mixed. Girls tended to be more environmentally active than boys and boys did better than girls in problem-solving exercises.

Robinson and Kaleta’s (1999) study on Global Environmental Priorities of Secondary Students in Zabrze, Poland, examines Polish students’ (n=101) attitudes toward environmental threats. It was found that males and females, treatment and control groups, and students from different high school ranked the top three threats based more on personal experience than on whether they had taken environmental protection classes in school.

Bradley, Waliczek and Zajicek (1999) conducted a study on relationship between environmental knowledge and environmental attitude of high school students. Pre-test and post-test single group design was employed. 475 students are exposed to environmental science course. The study revealed that there was a significant difference between the pre-test and post-test scores on environmental attitude. In post-test the students come out with higher knowledge scores, exhibited more favourable environmental attitude.

Kuhlemeier, Vanden Bergh and Lagerweij’s (1999) study on environmental knowledge, attitude and behaviour of Dutch IX grade students reported that 57% of the students selected for the study had a positive attitude towards the environment and 35% were prepared to make sacrifices for the environment. Student knowledge about environmental problems, however, was fragmentary and often incorrect. Environmentally responsible behaviour was more strongly connected with the willingness to make sacrifices than with attitude toward the environment.
Greene et al. (2000) conducted a study on environmental attitude, knowledge and behaviours of Missouri 6th and 12th grade students. The Missouri Department of Conservation (MDC) produces various environmental materials for preschool, elementary and secondary students and sponsors, outdoor education programs. An MDC-sponsored survey of students in grades 6 and 12 found moderate levels of environmental knowledge, with weaknesses in the areas of biodiversity, wetlands, and prairies. Feelings of responsibility for the environment were related to student participation.

Johnson et al. (2003) conducted a study on zoo school for pre-schoolers: Laying the foundation for environmental education in US, Florida, the traditional approach to education in zoo settings operated under the premise that meaningful learning and improved attitudes toward environmental education would occur by simply exposing children to wild animals. This study was a preliminary evaluation of an innovative environmental education program at a medium-sized Florida zoo. The study explored the extent to which one of the programs, the Tots program, facilitated the learning of basic environmental education and awareness among preschoolers. The goal of the Tots program is to provide interactive, hands-on learning opportunities for preschoolers in the zoo environment while building child-adult relationships, a mandatory feature of the Tots program is the presence and involvement of parents/guardians during all activities. Activities included circle time, crafts, time in an investigative playroom, and zoo exhibit visits. Observation of the program’s activities, along with interviews of the stakeholders, revealed that the Tots
program allowed the children to develop knowledge about animals and environmental awareness in a safe environment while fostering the development of social skills.

A study by Loughland *et al.* (2003) on factors influencing young people’s conceptions of environment in Australia explained the importance of environmental education in schools for achieving environmental protection and improvement; statistically examined the factors that incline students to a ‘relation’ rather than an ‘object’ conception of the environment; concluded that development of the former would seem to be an important aim of environmental education and indicates how this might be achieved.

Shobeiri (2005) conducted a comparative study on Environmental Awareness and Environmental Attitude of teachers and students of Secondary schools in India and Iran. A part of this sample is of IX and X standard students of secondary schools in Mysore (India) and Tehran (Iran). His study revealed that:

- in both the countries gender and academic qualification and area of specialisation had influence on Environmental Attitude of teachers. In both the countries female teachers showed better Environmental Attitude than male teachers and teachers with master degrees had better Environmental Attitude than other teachers with lower levels of education as well as science teachers exhibited better Environmental Attitude than art teachers.
- in both the countries, type of school management and age and lengths of experience had no influence on Environmental Attitude of teachers.
- Indian teachers had higher levels of Environmental Attitude than Iranian teachers.
• type of school management had influence on Environmental Attitude of students. 
  Iranian government school students showed better Environmental Attitude than 
  private school students. Whereas Indian private school students showed better 
  Environmental Attitude than government school students.
• gender had influence on Environmental Attitude of students. In both the countries 
  girl students showed better Environmental Attitude than boy students.
• in both the countries students studying in X standard exhibited more favorable 
  Environmental Attitude than IX standard students.
• Iranian students showed more favorable Environmental Attitude than Indian 
  Students.

2.3 STUDIES ON ENVIRONMENTAL AWARENESS IN INDIA

Pai (1981) experimented a study in environmental studies taking a group of 
152 college students to help them to acquire an awareness, develop positive attitude, 
develop skills necessary for solving environmental problems and taking preventive 
measures. The study revealed that there was a significant difference between the 
experimental group and the control group on knowledge scores and attitude scores 
and the experimental group gained more than the control group on environmental 
activities inventory, indicating effectiveness of the curriculum.

Shahnawaj (1990) conducted a study on Environmental Awareness and 
Environmental Attitude of Secondary and Higher Secondary School Teachers and 
Students in Rajasthan. The study revealed that:
• 95% teachers and 94% students possessed positive environmental attitudes.
• the environmental trained teachers and untrained teachers did not differ in their environmental attitudes and awareness.

• teachers had more awareness of the environment than students.

• girls possessed significantly more awareness of the environment than boys.

A study on awareness and attitude of teachers and students of high school towards environmental education in Jabalpur district by Rou (1995) revealed that:

• boys and girls, rural and urban students differ significantly on their awareness towards environmental problems, boys and urban students exhibited better awareness than girls and rural students.

• the students and teachers differ significantly on their environmental knowledge, teachers had better environmental knowledge than students.

• the urban teachers and the rural teachers differ significantly on their awareness of environmental problems, urban teachers had better awareness of environmental problems than rural teachers.

• the rural teachers and the tribal teachers did not differ significantly on their environmental awareness, while the urban teachers and tribal teachers differ significantly in their environmental awareness, urban teachers had better environmental awareness than tribal teachers.

• the students studying in government schools and private schools also differed significantly in their environmental awareness, in favour of the private schools.
• the teachers and parents differed significantly on their environmental awareness, teachers exhibited better environmental awareness than parents.

Singh (1995) developed a video instructional package for creating environmental awareness among secondary school students in Gujarat, Rajasthan and Uttar Pradesh and made a tryout of the instructional package. The study was developmental cum experimental in nature. The study revealed that the developed video instructional package was found significantly effective for the students.

Patel and Patel (1995) conducted a study on environmental awareness and its enhancement in the secondary school teachers and found that:

• there was a significant effect of environmental awareness programmes as a whole treatment on environmental awareness of the teachers of experimental group.

• there was no significant difference in the mean score of teachers with high and low experience on environmental awareness.

• there was no significant interaction between independent factors of environmental awareness programmes and experience upon environmental awareness of teachers.

Patel’s (1995) study on the environmental awareness of secondary school students in the context of IQ and sex, and effect of the environmental study multimedia package on environmental awareness of secondary school students. The study revealed that students with high IQ had better environmental awareness than the others; the environmental awareness multimedia package was more effective than the
traditional lecture method, girls were sensitive about the environmental awareness than boys.

Prajapat (1996) conducted a study on Effect of Programmes Developing Awareness among the Pupils of Standard IV in Gandhinagar, Gujarat. The study revealed that the:

- pre-acquired initial environmental awareness played much more role in enhancement of environmental awareness of the pupils of standard IV.
- programmes developing environmental awareness was an indirect successful means to develop the environmental awareness of the pupils of standard IV.
- main effect of the treatment, i.e. of the programmes developing environmental awareness was highly significant with reference to environmental awareness.
- pupils of experimental group were found with more enthusiasm than the pupils of control group.
- students from the non-government schools had been affected more by the programmes developiong environmental awareness.
- the pupils from all the groups were more enthusiastic and zealous towards receiving the education through programmes rather than through the textbooks.

Jinarajan’s (1999) study on environmental awareness and attitude towards environmental education of student teachers in Bangalore city revealed that:

- sex had no impact on environmental awareness.
- qualification or stream of studies – arts or science chosen by student teachers has impact on environmental awareness. Science student teachers had more
environmental awareness than arts student teachers and English medium student teachers had not environmental awareness than Kannada medium student teachers.

Nagra and Dhillon (2005) conducted a study on environmental education awareness among elementary school teachers. A total sample of 1800 elementary school teachers was selected using stratified random sampling technique from five districts namely Amritsar, Jalandhar, Kapurthala, Nawanshahar and Gurdaspur. The important conclusions derived from this study are as follows: Male and female elementary school teachers showed no significant variation in environmental education awareness, thereby highlighting that sex was not the factor affecting environmental education awareness among the school teachers. The subject specialisation of the school teachers also showed significant variation in environmental education awareness. Science teachers had significantly higher environmental education awareness than their social science and language counterparts.

Dhawan, Rawat and Sharma (2005) conducted a study of Environmental Education in pre-service teacher education of Garhwal University. This study mainly purported to compare the Environmental Knowledge, Awareness and Attitude of B.Ed. students of Garhwal University before and after the training and also to investigate the effectiveness of syllabus of Environmental Education in the B.Ed. Course of Garhwal University.

The findings of the study were:

- Pupil teachers before the training had less Environmental Knowledge, Awareness and Attitude as compared to the after training.
• Significant positive correlation was observed between the Environmental Knowledge and Awareness of pupil teachers before and after the training.

• There was moderate correlation between Environmental Knowledge and Environmental Attitude before as well as after the training.

• The correlation between Environmental Awareness and Attitude of pupil teachers was very low positive before the training and moderate positive after the training.

Mishra (2006) conducted a study on Environmental Awareness of secondary school students with reference to their intelligence and school background. The objectives were to study the:

• effect of school background on environmental awareness of secondary school students,

• effect of intelligence on environmental awareness of secondary school students,

• interaction effect of school background and intelligence on environmental awareness of secondary school students.

The sample of the study consisted of 297 10th grade students selected from 15 schools situated in 5 towns of Orissa. From each of the 5 towns, 3 schools, one each affiliated to three bodies i.e. BSE, Orissa, ICSE, New Delhi and CBSE, New Delhi were selected. The technique of random sampling was followed.

The findings of the study were:

• The average level of awareness of all groups of secondary school students on the four aspects of environment included in the study viz., air, water, soil and sound and also their overall environmental awareness is not encouraging.
• Intelligence has significant independent effect on the awareness of secondary school students on air, water and soil aspects of environment and on overall environment but not on sound aspect of environment.

• Secondary school students of average intelligence differ significantly in their awareness about air aspect of environment from the low intelligent as well as high intelligent students and they have better awareness.

• High intelligent secondary school students have significantly better awareness about water and soil aspects of environment than the low intelligence students.

• The secondary school students of low intelligent group have less awareness of environment as compared to both high intelligent and average intelligent groups.

• School background of secondary school students has significant independent effect on their awareness of air, water, soil and sound aspects of environment and also an overall environment.

• The students of the secondary schools pursuing the syllabi of CBSE, New Delhi have significantly better awareness on environment as compared to the students pursuing the syllabi of BSE, Orissa and ICSE, New Delhi.

• Intelligence and school background of secondary school students have significant interaction effect on their awareness on air, water, soil and sound aspects of environment and also on overall environmental awareness.
2.4 STUDIES ON ENVIRONMENTAL AWARENESS IN IRAN AND OTHER COUNTRIES

Hausbeck et al. (1992) conducted a study on environmental knowledge, awareness and concern among 11th grade students. An assessment of eleventh graders (n = 3,200) in New York state revealed low scores on environmental knowledge and higher scores on environmental awareness and environmental concern. This includes policy suggestions for improved environmental education at the secondary school level within New York state and the United States.

In a study by Szagun and Pavlov (1995) on “German and Russian Adolescents’ Environmental Awareness”; German (n = 610) and Russian (n = 610) adolescents in 3 age groups, 12, 15 and 18 years, were given a questionnaire assessing their readiness for pro-environmental action, and their ethical attitude toward nature. In both nationalities anxiety, sadness and anger about environmental destruction were high, but hopelessness was rejected. German adolescents expressed more readiness for pro-environmental action and more consideration in human relations with living things than Russians. While German adolescents were willing to perform small-scale pro-environmental action, with age they became increasingly reluctant to accept greater commitments for ecology. Females of both nationalities agreed more strongly to emotions and action than males. Particularly males aged 15 or above. Results are interpreted in terms of differences in environmental values and education in the two countries and in terms of females’ higher prosocial attitudes.

CEDARE (2000) has sponsored in cooperation with the League of Arab States and the Arab League Educational, Cultural and Scientific Organization (ALECSO), a
study on Arab Environmental Education survey for University students, to assess the perception of students towards environmental problem and their level of awareness. The questionnaire covered diverse issue ranging from noise and air pollution to environmental protection, national protectorates and biodiversity. Responses were received from Egypt, Oman, Saudi Arabia, Syria and Yemen covering in total 490 questionnaire sheets. The total average response to the questionnaire by gender reflected a higher participation by males (62%) compared to female (34%). Nevertheless, the gender analysis indicated adjoining perceptions and similarities in the level of awareness between males and females in Egypt, Oman, Saudi Arabia, Syria and Yemen.

Badkobi, et al. (2001) conducted a study on Assessment of Primary School Teachers Educational Condition in Different Zones of Tehran Municipality in Environmental subjects and the ways of elevating their awareness. The study revealed that the:

- male teachers have more awareness about environment.
- level of environmental awareness of science teachers is more than that of other subjects teachers.
- level of environmental awareness of teachers are enhanced with increasing their education level.

Hadipour and Shokravi’s (2002) study on the public level of environmental awareness and methods of environmental education for housewives and women teachers in the elementary schools of Arak city indicated the necessity of
environmental education and revealed a basic weakness in information dissemination. It was found that popular lack of information and awareness is the vital factor for creating and increasing of environmental problems. More than one-third of teachers are of the opinion that viewing training films and holding training class for students are the most effective methods in environmental education. Lack of sufficient popular training and proper organising are the outstanding reasons for the unsatisfactory levels of official organizational activities. In explaining its findings, the research presents suggestions for increasing environmental awareness.

Sheikh-Khatibi (2002) conducted a study on environmental education to citizens or creating motivation and self-awareness through their participation in local-public activities.

Until environmental education in large cities depends on direct training, it will fail to attract citizen’s cooperation and also create other negative effects. Encouraging local people to solve their environmental problems in the immediate vicinity would prove very effective. They understand their local situation better and their motivation and participation is stronger; given this level of incentive, their awareness can be raised if proper participatory conditions exist. Research has been conducted in one section in District 2 of Tehran Municipality. Four residential high-rises were covered and considered a study module that housed 712 families. Statistical methods were used to evaluate the buildings’ management effectiveness and the impact of public participation in improving management. The results indicated that the following factors hindered the tenants from effectively cooperating with management:

- Personal and individual problems.
• Management difficulties and
• A lack of equipment and facilities to promote a resident–management working relationship.

In this survey, the third element was recognized as the most important factor. It eclipsed the two other factors while negating other choices for successful collaboration between residents and management. These choices included:
• Increasing awareness through neighbours exchanging experiences.
• Creating incentive for participation in residents.
• Increasing their self-awareness at the least expense.

Karimi’s (2003) carried out a survey study on environmental education needs for students, teachers and housewives in the Khak Sefid district of Tehran. In this survey, the degree of awareness of three groups of different social classes of people in this district have been studied and measured by using the Kaufman, Currigan and Johnson’s model of needs assessment. Results of the research showed that the consciousness of the average housewife on environment issues was very limited. The relative knowledge of teachers and students on the general concept of environment was greater. In each of the three groups, most of the individuals interviewed were eager to learn more about environmental issues. Yet, very few were willing to pay the cost for such training. Finally, the survey proposed needed training program and appropriate training styles of each group.

Shobeiri (2005) conducted a comparative study on Environmental Awareness and Environmental Attitude of teachers and students of Secondary schools in India.
and Iran. A part of this sample is of IX and X standard students of secondary schools in Mysore (India) and Tehran (Iran). His study revealed that:

- gender, age and length of teaching experience had no influence on teachers’ Environmental Awareness in both the countries.

- in both countries, type of school management had influence on Environmental Awareness of teachers. Indian private school teachers showed better awareness about their environment than government school teachers whereas Iranian government school teachers showed better awareness towards environment than private school teachers.

- the academic qualification and area of specialisation had influence on environmental awareness of teachers in both the countries, teachers with master degrees had better environmental awareness than other teachers with lower levels of education and science teachers exhibited better environmental awareness than art teachers.

- Indian teachers had higher levels of Environmental Awareness than Iranian teachers.

- gender had no influence on Environmental Awareness of students in both the countries.

- type of school management had influence on Environmental Awareness of students. Iranian government school students showed better Environmental Awareness than private school students. Whereas Indian private school students showed better Environmental Awareness than government school students.
• in both the countries, students studying in X standard exhibited higher Environmental Awareness than IX standard students.

• Iranian students showed higher Environmental Awareness than Indian Students.

• there is a relationship between Environmental Awareness and Environmental Attitude of teachers and students in both the countries.

2.5 CONCLUSION

The review of the studies related to the present study indicated the following.

• Some studies in many countries including India and Iran like Gupta (1986), Shahnawaz (1990), Praharaj (1991), Smith and Smith (1997) indicated that the teachers have high level of Environmental Attitude and Attitude towards Environmental Education.

• A few researchers like Shahnawaj (1990), Biswas (1990), Kuhlemeier and Vanden Bergh and Lagerweij (1999) reported that students had high level of Environmental Attitude.

• A few researchers like Rou (1995), Shobeiri (2005) revealed that female teachers had more favourable Environmental Attitude than male teachers. However Shaila’s (2003) study showed gender had no effect on teachers’ Environmental Attitude.

• Gender difference also was found in the case of students in their Environmental Attitude in some of the studies like Biswas (1990), Abraham and Arjunan (2005), where boy students had more favourable Environmental Attitude than girl students. Whereas Shobeiri’s (2005) study showed girl students had more favourable Environmental Attitude than boy students. However, a few researchers
reported that sex had no influence on Environmental Attitude of student like Chethana (2003), and Rout and Agarwal (2006).

- A few researchers like Rou (1995), Tripathi (2000) revealed that boy students had better Environmental Awareness than girl students. Whereas Shahnawaj’s (1990) study showed girl students had better Environmental Awareness than boy students. A few researchers like Shobeiri (2005) and Rout and Agarwal (2006) reported that sex had no impact on Environmental Awareness of students.

- A few studies like Jinarajan (1999) and Badkobi et al. (2001) had shown that Environmental Awareness of science teachers was rated high compared to arts teachers.

- Some of the studies like Dinakara (2000) and Shobeiri (2005) revealed that there is relationship between Environmental Attitude and Environmental Awareness of teachers.

- The studies on Environmental Education in general and Environmental Awareness and Attitude in particular are more in India and other countries whereas they are very less in Iran.

- Comparative studies on Environmental Education, Environmental Attitude and Awareness between any two countries or places in general and between India and Iran in particular are found to be very few.

This substantiated adequately the need for research in the area of Environmental Education in general and the present comparative study between India and Iran with respect to higher primary school teachers.