2.1 **Introduction:**

Research takes advantage of the knowledge which has accumulated in the past as a result of constant human endeavour. It can never be undertaken in isolation of the work that has already been done on the problems which are directly or indirectly related to a study proposed by a researcher. A careful review of the research journal, books, dissertations, theses and other sources of information on the problem to be investigated is one of the most important steps in the planning of any research study. A review of related literature must precede any well planned research study.¹

Review of related literature gives the researcher the idea of the kind of studies already been done in the same area and in which direction and how the future research should be conducted. He / she draws maximum benefit from the previous investigations, utilizes the previous findings, takes many hints from the designs and procedures of previous researches, matches his conclusions with the conclusions drawn earlier and tries to add from his side a line or two to the existing store of knowledge.²

Review of related literature, besides allowing the researcher to acquaint himself with current knowledge in the field or area in which he is going to conduct his research, serves the following specific purposes:³

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²Kulbir Singh Sidhu, *Methodology of Research in Education*, New Delhi, 1990, p.69
³Lokesh Koul, *op.cit.*, p.166
- Review of related literature enables the researcher to define the limits of his field. It helps the researcher to delimit and define his problem. The knowledge of related literature brings the researcher up-to-date on the work which others have done and thus to state the objectives clearly and concisely.

- By reviewing the related literature the researcher can avoid unfruitful and useless problem areas. He can select those areas in which positive findings are very likely to result and his endeavours would be likely to add to the knowledge in a meaningful way.

- Through the review of related literature, the researcher can avoid unintentional duplication of well-established findings. It is no use to replicate a study when the stability and validity of its results have been clearly established.

- Review of related literature gives the researcher an understanding of the research methodology which refers to the way the study is to be conducted. It helps the researcher to know about the tools and instruments which proved to be useful and promising in the previous studies. The advantage of related literature is also to provide an insight into the statistical methods through which validity of results is to be established.

- The final and important specific reason for reviewing related literature is to know about the recommendations of previous researches listed in their studies for further research.
Good, Barr and Scates analysed that survey of related literature, besides forming one of the early chapters in research report for orienting the readers, serves some other purposes. They analysed these purposes as:

(i) to show whether the evidence already available solves the problem adequately without further investigation, and thus to avoid the risk of duplication;

(ii) to provide ideas, theories, explanations or hypotheses valuable in formulating the problem;

(iii) to suggest methods of research appropriate to the problem;

(iv) to locate comparative data useful in the interpretation of results; and

(v) to contribute to the general scholarship of the investigator.

Sources of information, existing in any field of research, may be of two types – direct and indirect. Direct sources of information include:

- periodical literature found in journals.
- books, monographs, yearbooks and bulletins.
- graduate, doctoral and other theses, and
- certain miscellaneous sources – like government publications on education.

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5S.P.Sukhia et al, *op.cit.*, p.103
Indirect sources of information or guides to educational literature are available in the form of:

- encyclopaedia of education.
- education indexes.
- education abstracts.
- bibliographical references.
- quotation sources.
- miscellaneous sources.

The present study reviewed the available literatures and research studies which had been conducted in the areas related to the study. It summarizes the studies into two- Studies Conducted in India and Studies Conducted Abroad.

2.2 Studies Conducted in India:

Although there have been repeated efforts to identify the problems related to the environment and stress the importance of environmental studies in education, few research studies have been undertaken in India in this area. A brief review of the studies is given below:

A Comparison of Environmental Awareness among Children of Non-Formal Education Centres of Madhya Pradesh and Maharashtra was made by Rajput, Gupta and Grewal (1982). The sample consisted of students studying at

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non-formal education centres who had reached the level of Class IV. Sixty children were selected from the non-formal education centers located in Narsinghgarh block in the Rajgarh district of Madhya Pradesh. Fifty four children were selected from the non-formal education centers located in Chandrapur district of Maharashtra. These centers were run by the Regional College of Education, NCERT on an experimental basis from April 1978 to May 1982. The study revealed differences between the two groups of children studying in different geographical regions on environmental awareness. The difference in awareness score may not be necessarily be due to lack of knowledge on the part of the children but may be due to varied emphasis laid on teaching of the different subjects in which environmental contents are incorporated at the primary level. The study also found that children of both groups were lacking in the application part of their knowledge of the environment.

Rasem Menla 7 (1984) conducted a study entitled, “To Study the Environmental Education Programme in some Selected Primary Schools in Mokokchung Town”. This study revealed that the teachers’ reaction towards environmental education was positive. It was also highlighted that the teachers faced considerable difficulties in teaching environmental studies at the primary stage in Mokokchung town. Another finding was that almost all the students, i.e., 91.7 percent took interest in environmental education but that the teachers faced difficulties due to shortage of materials.

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7Rasem Menla, “To Study the Environmental Education Programme in some Selected Primary Schools in Mokokchung Town” Unpublished dissertation, NEHU, Shillong, 1984
A study on Environmental Awareness among Secondary School Students was conducted by Pareek, Ashok and Kumar (1986). The study was conducted to assess the existing environmental awareness and to identify the lesson needs of the students. Of the 1000 students selected by stratified random sampling, 500 students were from the urban areas and 500 students were from the rural areas. The sample was selected from Tehsils of Jaipur local city. The study revealed that 40 percent of the students showed poor environmental awareness and the remaining 60 percent of the students were well-versed with their surroundings and had good to excellent knowledge about various environmental issues. A comparative study was made between urban students and rural students. It was found that there existed significant difference between urban students and rural students and that the urban students showed higher cognitive level of awareness. There was no significant difference found between the boy students and the girl students in the cognitive level of environmental awareness.

Prasad (1987) studied Environmental Awareness of the Women of a South Indian Village to assess the environmental awareness of the village womenfolk and to make recommendations for its improvement by way of environmental education. For the study, 182 women aged 20 -50 were randomly selected from Kammapalli Village in Puturtalik of Chittoor district. These women were classified according to caste and educational status. The findings showed

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that the degree of awareness was directly related to caste system and educational status. It also revealed that the degree of awareness was lower among the scheduled castes and the uneducated group. Not much difference was found among the different castes and educational categories regarding environmental problems like radiation hazards and the Bhopal gas accident.

Shahnawaj\textsuperscript{10} (1990) conducted a study on Environmental Awareness and Environmental Attitude of Secondary and Higher Secondary School Teachers and Students at Udaipur. The study showed that 95 percent of the teachers and 94 percent of the students possessed positive environmental attitudes. It was found that the teachers were more aware of the environment than the students and that there was no difference in the environmental attitudes between the trained teachers and the untrained teachers. The trained teachers and the untrained teachers also did not differ on environmental awareness. The study showed that the girls were more significantly aware of the environment than the boys.

A Study on Environmental knowledge, Environmental Attitude and Perception regarding Environmental Education among Pre-Service and In-Service Secondary School Teachers was conducted by Praharaj\textsuperscript{11} (1991). The study revealed that (i) the level of environmental knowledge was low among the pre-service school teachers although conceptual knowledge was moderate, (ii) the


environmental knowledge was moderate and factual knowledge about the environment was low among the in-service school teachers (iii) there was significant difference between the Pre-service school teachers and the In-service school teachers in their level of environmental knowledge. They both had favourable attitudes towards environmental education although the In-service teachers had a higher level of attitude than that of the Pre-service teachers. (iv) there was moderate correlation between environmental knowledge and environmental attitude (v) the teachers perceived environmental education could be a core part of social science and general science. Science subjects as well as mass media have an important role to play in imparting environmental education in the secondary schools.

Gopalakrishnan\textsuperscript{12} (1992) studied Impact of Environmental Education on Primary School Children. One thousand four hundred and fifteen students of Class V from ten different primary schools in the Nilgiris, Madras and Coimbatore were selected and exposed to environment education. They were then put through an Environmental Education Test (EET). The findings showed that environmental education had a very good impact on the students and that the students of Madras scored better than students from the Nilgiris and Coimbatore. The study also showed that the participatory learning approach could bring about better impact on the students.

Sahoo\textsuperscript{13} (1992) conducted a Critical Study on the Conception and Perception of Environmental Education. The findings showed that (i) the concept of the environment is broadly divided into two types – natural and man-made (ii) man-made environment are of different types such as social, economic, political, aesthetic, historical, geographical, psychological, religious and academic (iii) flora and fauna constitute the biotic environment (iv) the atmosphere, hydrosphere and lithosphere constitute the abiotic environment (v) the fusion of different types of environment forms the holistic concept of environment and the relationship between man and environment is symbiotic in nature (vi) the different stages of evaluation – the hunting gathering stage, the agricultural stage and the industrial stage reflect such a relationship (vii) gradually man’s domination over the environment has created complexities in the man – environment relationship (viii) efforts are continuing with regard to environment management, with focus on unity of life, sustainable development, human welfare, futuristic and cultural progress (ix) several workshops, committees and bodies at national and international levels have thrown light on the conceptual analysis of environmental education.

A study entitled, “A Study of the Attitude of College Students in Shillong towards Environmental Education” was conducted by Synrem (1996)\textsuperscript{14}. It was found through the study that the attitude of college students in Shillong towards


environmental education was favourable. The attitudes of boys, girls, arts, science and commerce college students towards environmental education were favourable. The study showed that there was significant difference between boys and girls in their attitude towards environmental education. There was no significant difference between the mean score of the arts and science students, the science and commerce students, and the arts and commerce students in terms of their attitude towards environmental education.

Gakhar and Kalra\textsuperscript{15} (1998) studied the Environmental Awareness among the Urban and Rural Senior Secondary School Students in Relation to Intelligence and Socio-Economic Status. A hundred students of Standard XI were selected on the basis of randomization technique from three urban and one rural senior secondary schools of Ferozepur district of Punjab. The findings revealed that (i) intelligence has significant positive correlation with the environmental awareness of senior secondary school students in Urban (ii) variable of intelligence has significant positive correlation with awareness about the environment in case of the rural sample (iii) variable of socio economic status depicted significant positive correlation at 0.01 level in both urban (r = .42) and rural (r = .41) samples. (iv) variable of sex differences did not account for significant differences on the environmental awareness of students in case of both urban and rural samples (v) the scores of urban and rural students on

environmental awareness questionnaire was found to be highly significant. The students belonging to the urban areas had higher scores than that of the students in the rural areas.

Synrem\textsuperscript{16} (1999) studied Environmental Awareness and Attitude towards Environmental Education among the College Students in Greater Shillong. The study found that the level of environmental awareness of the college students in Greater Shillong was very good and that their attitude towards environmental education was also good. The level of environmental awareness and attitude towards environmental education of the different gender, streams and type of colleges were also very good. No significant differences were found among the college students in their attitude towards environmental education on the basis of gender, streams and type of colleges. It was also revealed that there existed no significant differences between the male and the female college students; and between the different types of colleges in the level of environmental awareness. There was no significant difference between the arts, science and commerce students except between the science and the commerce students. The study concluded that the third year degree course college students in Greater Shillong were having satisfactory level of environmental awareness and had favourable attitude towards environmental education.

\textsuperscript{16}E.Synrem, “Environmental Awareness and Attitude towards Environmental Education among the College Students in Greater Shillong”, Unpublished M.Phil. dissertation, NEHU, 1999.
Pradhan\textsuperscript{17} (2001) conducted a study on Environmental Awareness among Secondary School Teachers. The findings showed that the teachers working in secondary schools had low level of environmental awareness. It also showed that there was significant difference in environmental awareness between social science, language and science teachers. The environmental awareness level of the science teachers was significantly higher than the awareness level of the social science teachers. The science teachers also showed significantly higher environment level than the teachers of language subjects. However, no significant difference was found between the social science teachers and the language teachers in the level of environmental awareness. The teachers teaching in the urban schools were found to possess a higher level of environmental awareness than the teachers teaching in the rural schools. No significant difference was found between the male teachers and the female teachers in the level of environmental awareness.

Lalchharliani\textsuperscript{18} (2004) studied Environmental Pollution Awareness and Attitude towards Environmental Education among College Students in Aizawl District. Environmental Pollution Awareness Test was developed to assess the level of environmental pollution awareness among college students in Aizawl district. Attitude towards Environmental Education Scale was also developed to measure the attitude of college students in Aizawl district. The major findings of

the study were (i) the environmental pollution awareness level of college students was good (ii) the attitude of college students towards environmental education was satisfactory.

In comparing the different groups studied on the Environmental Pollution Awareness Level (EPAL), it was found that (i) there was no significant difference between the male and female students. (ii) significant difference was found between the science and arts college students. The science students were found to possess higher level of EPAL. (iii) no significant difference was found between the science and commerce college students. (iv) there was significant difference between the commerce and arts students with the commerce students possessing higher EPAL. (v) significant difference was also found between the government and deficit college students with the government college students having a higher EPAL. (vi) the government college students were found to have higher EPAL than the private students and the constituent college students. (vii) the deficit college students also had higher EPAL than the students of private college and constituent colleges. (viii) the constituent college students were found to have higher EPAL than the private college students.

In the comparison of the Attitude towards Environmental Education (ATEE) the findings were (i) there was no significant difference between the male and female students. (ii) the science students were found to have higher ATEE than the arts students. (iii) no significant difference was found between the science and commerce students. (iv) the commerce students possessed higher
ATEE than the arts students. (v) the government college students were found to have higher ATEE than the deficit college students, the private college students and the constituent college students. (vi) no significant difference was found in the ATEE between deficit and private college students; between deficit and constituent college students; and between constituent and private college students.

The study revealed a fairly high positive correlation between environmental pollution awareness and attitude towards environmental education among college students in Aizawl district. The co-efficient of correlation was 0.78 which is significant at 0.01 level.

Syngkon 19 (2005) conducted a study on Level of Environmental Knowledge and Attitude towards Environmental Protection among Secondary School Students in Shillong. It was found that (i) majority of Class IX secondary students in Shillong had neutral Attitudes Towards Environmental Protection (ATEP), 36.1 percent had favourable attitude and none had unfavourable attitude. (ii) there was no significant difference between Class IX male and female students as far as their Level of Environmental Knowledge (LEK) is concerned. (iii) there was no significant difference between Class IX tribal and non-tribal students on LEK. (v) significant difference was found between Class IX students studying in government schools and deficit schools on LEK. (vi) there was

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significant difference between Class IX students and Unaided schools on LEK. (vii) there was significant difference between Class IX students studying in government schools and Adhoc schools on their LEK. (viii) significant difference was found between Class IX students studying in government schools and newly-permitted schools on LEK, and (ix) there was significant difference between Class IX students studying in deficit schools and Unaided schools on LEK.

Astalin 20 (2011) studied Environmental Awareness among Higher Secondary Students and some Educational Factors affecting It. For the study, 608 students were selected from different Boards by using cluster random sampling technique; with 280 male and 328 female students. The major findings of the study were that the students of 11th and 12th Standard were identical as far as their environmental awareness was concerned. Science stream students had more environmental awareness in comparison to arts stream students. The CBSE students had more environmental awareness in comparison to UP Board students. Parents’ group of students belonging to literate, undergraduate, post graduate and research had more environmental awareness in comparison to parents’ group of students belonging to high school and intermediate. Finally the male students had more environmental awareness in comparison to the female students.

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Pillai (2012)\textsuperscript{21} conducted a Study of Environmental Awareness of Higher Secondary School Students in Cuddalore District. The study was conducted on a sample of 820 higher secondary school students in Cuddalore district, Tamil Nadu. The findings revealed that there was significant difference between the male and female students with regard to their environmental awareness. Significant difference was also found between the rural area and the urban area students; and between the arts and science group students regarding their environmental awareness.

Mishra (2012)\textsuperscript{22} studied Environmental Awareness among Senior Secondary Students of Maheshwar and Mandleshwar, Dist-Khargone (M.P). The findings were (i) there is no significant difference on environmental awareness among students of public and government schools. (ii) there is no significant difference on environmental awareness among male students of government and public schools at senior secondary level. (iii) the science students are significantly higher than the arts students of government schools. Science students are more aware about environmental problems in comparison to arts students. (iv) the science students are significantly higher than the arts students of public schools. Science students are more aware about environmental problems in


comparison to arts students. (v) students with 60 marks (high achieving) are more enlightened than the average students getting marks in the range of 50 -60 percent. (vi) the high achieving students are significantly higher than the low achieving students on environmental awareness. (vii) there is no significant difference on environmental awareness among average achieving students and low achieving students. (viii) there is no significant difference among students who have an access to media and those who do not have an access to media.

2.3 Studies Conducted Abroad:

A study by Bennet\textsuperscript{23} (1973) reported Pupil’s Environmental Knowledge and Attitude towards Environment. It was found that no significant gain in effective achievement can be brought about in pupil’s attitudes in desired direction through planned curricular efforts.

Hamann \textsuperscript{24} (1973) conducted a Study on the Development of Environmental Knowledge and Attitude towards Environment among the pupils. It was shown that significant changes in a pupil’s attitudes towards a desired direction could be brought about through planned curricular experiences.

A study conducted by Hartung\textsuperscript{25} (1974) on the Relationship between the Cognitive Achievement in Environmental Knowledge and Attitudes towards

\textsuperscript{24}\textit{ibid.}
\textsuperscript{25}\textit{ibid.}
Environment showed that the trend of the relationship between achievement and attitudes ranged from negative to positive correlation.

Bohl\textsuperscript{26} (1977), in a study of the Relationship between the Cognitive Achievement in Environmental Knowledge and Attitudes towards Environment found that the trend of the relationship between achievement and attitude ranged from negative to positive correlation.

Brock\textsuperscript{27} (1978) on the Study of the Relationship between the Cognitive Achievement in Environmental Knowledge and Attitudes towards Environment reported that the relationship between achievement attitude ranged from negative to positive correlation.

Muttaqi and Roy\textsuperscript{28} (1984) studied Environmental Knowledge and Attitude towards Environment among the Secondary School Students of some selected schools of Bangladesh. The sample included all the students of Grades VI, VII and VIII of five selected schools. A pre-test post-test design was used to determine the changes in the knowledge and attitudes of the students. The teaching of twelve biology units developed for the experiment, four in each of the three grades, formed the experimental treatment for the students. Three instruments were developed and validated for measuring the knowledge on environment for the students of Grade VI, VII and VIII. Each of the instruments contained fifty multiple choice items on different aspects of environment. For

\textsuperscript{26}ibid., p.105
\textsuperscript{27}ibid., p.104
\textsuperscript{28}ibid., pp.101-105
measuring the attitudes towards environment a Likert Scale was developed and validated. Forty five items were prepared and used in all the three grades. Students’ t-test was applied to determine the significance of changes in knowledge and attitudes. Correlation technique was used to find out the relationship between knowledge and attitudes. The findings pointed out that there exists an apparent relationship between cognitive knowledge in environment and attitudes towards environment.

Julie E. Schmidt (2007) conducted a study on, From Intentions to Actions: The Role of Environmental Awareness on College Students. Previous research has been able to associate strong attitudes with intentions; this research goes beyond intentions by measuring behaviours. Surveys were used to verify the impact of introductory environmental courses on participants’ environmental awareness. Two independent groups were divided by the characteristic of enrollment in the course. Participants consisted of 115 undergraduate university students with 70 subjects enrolled and 45 not enrolled. The purpose of this study was to discover the impact of an environmental education course on student attitudes and behaviours. It was predicted that being enrolled in a course on environmental issues would be associated with an increase in pro-environmental attitudes and behaviours, and also increase the correlation between environmentally conscious attitudes and behaviours as a function of course.

participation. Results indicated a significant difference in pro-environmental attitudes and behaviours between students enrolled in the course and not enrolled. Students in the course reported greater pro-environmental attitudes and behaviours than students who were not enrolled. Results also revealed a positive correlation between attitudes and behaviour at the end of the course. These findings suggested a need for stressing the importance of environmental awareness in an educational setting, in order to benefit both student knowledge and future welfare of the greater population.

2.4 Conclusion:

This chapter presents the review of the available research on the issues of environment. Despite recognition of the importance of the knowledge of the environment and of environmental education, there have not been adequate researches to gain information from. However, attempts were made to study the available literatures and to give a brief review of the research studies which had been conducted in the areas related to the present study.