Conclusions and Recommendations...
5. CONCLUSIONS AND RECOMMENDATIONS

"In the end we will conserve only what we love; we will love only what we understand; and we will understand only what we have been taught."

~ Baba Dioum

Research work reported and discussed in previous chapters on “environmental awareness and attitude of pre-service and in-service elementary and secondary school teachers”, helped the researcher to draw some broad as well as specific conclusions about the present status of environmental awareness and attitude towards environment of pre-service and in-service elementary and secondary school teachers in the delimited study area of Guragon, Rewari and Mohindergarh districts of Haryana. It is stated that all conclusion should be read within the delimited scope of the present study such as the observations made are based on the data collection from pre-service and in-service elementary and secondary school teachers of three districts of Haryana viz. Guragon, Rewari and Mohindergarh and their subsequent interpretation.

However, it is felt that the teachers who participated in present study have responded honestly to the questions in the two tests on environmental awareness and attitude towards environment. The data set generated herein is very robust and unbiased as opinion of the pre-service and in-service elementary and secondary school teachers about environmental awareness as well as attitude towards environment follows a normal frequency distribution pattern. Mean and median scores of the environmental awareness as well as
attitude towards environment are very close to each other rather same in some cases.

The level of teaching i.e. elementary or secondary as well as status of teacher i.e. teacher trainee/pre-service or in-service has least effect on their environmental awareness levels. All teachers irrespective of their education, gender, year of teaching experience has got very high level of environmental awareness with very limited cases of average environmental awareness level. However, teacher training and teaching experience seems to increase the absolute scores of individuals on environmental awareness, reflecting a positive impact of these two parameters on environmental awareness levels.

All teachers have neutral to slightly moderately favorable attitude towards environment. Teachers of all categories and status are strongly lacking on their pro-attitude towards environment. The high levels of environmental awareness among all category teachers have not transformed into their behavior changes. Therefore, the yield in the attitude of children towards environment is less likely to occur at the desired pace.

The specific findings of the present study vis a vis objectives of the study are listed here below:

1. All pre-service and in-service elementary and secondary school teachers are highly aware about our natural environment, and related problems and their solutions.

2. Pre-service elementary and secondary school teachers have significantly different levels of environmental awareness.
3. In-service elementary and secondary school teachers have same level of environmental awareness.

4. Pre-service and in-service elementary school teachers are equally aware about environment and related issues, and both carry high level of environmental awareness.

5. Pre-service and in-service secondary school teachers also have similar understanding about their natural environmental, an observation similar to pre-service and in-service elementary teachers.

6. The pre-service teachers' of both category have neutral attitude towards environment whereas the in-service elementary and secondary school teachers' have moderately favourable attitude towards their environment.

7. Pre-service elementary and secondary school teachers do not differ significantly (at p <0.05) on their attitude towards environment whereas they have differed on their environmental awareness levels.

8. In-service elementary and secondary school teachers also do not differ significantly (at p <0.05) in their attitude towards environment.

9. Pre-service and in-service elementary school teachers differ significantly (at p <0.05) on their attitude towards environment whereas they did not differ on their environmental awareness.

10. Pre-service and in-service secondary school teachers also differ significantly (at p <0.05) on their attitude towards environment.
11. There are significant differences (at \( p < 0.05 \)) between the environmental awareness and attitude towards environment of in-service elementary school teachers.

12. Environmental awareness and attitude towards environment of Pre-service elementary school teachers also differ significantly (at \( p < 0.05 \)).

13. In-service secondary school teachers show significant differences on their environmental awareness and attitude towards environment.

14. Pre-service secondary school teachers also differ significantly in their environmental awareness and attitude towards environment.

Some of the findings obtained in the present study are partially in accordance with similar studies done earlier and others differ with previous studies. The time gap between the present study and previous studies could be a possible reason for such differences in the observations as the nature of exposure by present day teachers is significantly different compared to old ones, and the syllabi of teacher training institute as well as of schools have been modified significantly in last decade. Researcher could not find any recently conducted similar study to compare with. The attitude of the teachers towards environment can be changed based on some of the strategies listed below – Provide exposure the teachers to recent developments in environmental issues like global warming and so on; Encourage teachers to participate in workshops and conferences on environmental science and environmental education; Update the teachers knowledge on environmental related issues by refresher courses/ crash courses; Compulsory environmental
studies in all levels of education from primary to post graduation.

5.2 IMPLICATIONS OF THE STUDY

It is revealed from the present study that environmental awareness level of pre-service and in-service elementary and secondary school teachers is very high, and all of them carry neutral to slightly moderately favorable attitude towards environment. This tells us that proper or high environmental awareness does not ensure proper positive attitude toward environment, and its related problems and their solutions, whereas it is attitude or behavior which really helps an individual in caring for the environment. Therefore, it is required that we may think and devise alternative methods and means towards development of favorable attitude towards environment among teachers, which may ultimately help in creating environmentally aware students and citizens. Having high level of environmental knowledge by a teacher or any individual neither solve the problems of deterioration of environment quality nor help in producing environmentally literate citizens. It further adds to poor implementation of environmental education at school level. The researcher felt that environmental education practiced with regard to its take-up in primary and secondary school is inadequate and it does not achieve the outcome communicated in the policy documents. The implications of the study also fall on the syllabi of pre-service teacher training colleges/institutions. Delivery of knowledge, as far as environmental education is concerned, is not up to the mark and not producing environmentally literate teachers. In such scenarios, it is very less likely that the future generation will care for our natural environments.
5.3 RECOMMENDATIONS FOR SUCCESSFUL IMPLEMENTATION OF ENVIRONMENTAL EDUCATION AT SCHOOL LEVEL

Based on the observations made from the present study on “environmental awareness and attitude of pre-service and in-service elementary and secondary school teachers”, following suggestions/recommendations are made by the researcher in order to achieve the goal of effective environmental education for all in the 21st century, in India particularly. We have reached to the consensus that teachers, particularly primary and secondary level, can play a vital role in meeting this tough objective. The best hope for learning to live sustainably lies in schooling that is "smart by nature." It includes experiencing the natural world; learning how nature sustains life; nurturing healthy communities; recognizing the implications of the ways we feed and provision ourselves; and knowing well the places where we live, work, and learn. Teachers are in a prime position to be able to weave these basics through the teaching curriculum at every grade level. Therefore, the major recommendations are focused on improving the environmental awareness, knowledge, attitude and behavior of teachers towards environment of both categories pre-service and in-service elementary as well as secondary school level. Suggestions are also made for policy makers, government’s nodal education governing agencies such as state council of educational research and training (SCERT), National Council of Educational Research and Training (NCERT) and other similar bodies. The suggestions emerged from the present work are listed here below:

> Environmental education should be taught as separate subject at all levels of school education rather as part of science or social science.
The teaching part should include a substantial part on field visits and practical demonstrations about natural processes to develop an in-depth feeling in the children about their protection.

To meet the above two, it is mandatory that environmental education must be made as a compulsory subject at D. Ed., B. Ed., and M. Ed. level by incorporating environmental science or education as essential subject in the syllabi.

Environmental education course must be passed by all "would be trainee" irrespective of their educational background i.e. science, arts, social science or commerce or level of education i.e. 10+2 or B. Sc or B.A or B. Com.

Compulsory environmental awareness camps and seminars should be organized at all three levels of trainee teachers (primary, secondary or senior secondary) on regular basis to get hand on experiences during the course of their training.

Similar practice of organizing environmental awareness camps, seminars, lectures by eminent environmentalist should be started/initiated in the schools; this will help both students and in-service teachers.

Follow up refresher courses/seminars for in-service teachers at regular interval of at least two years; this should be mandatory for all teachers.

Government should initiate some awards for those teachers at all levels who contribute significantly in dissemination of environmental knowledge to the students and society as well.

The school taking special initiative for environmental awareness in the
surrounding villages/town/area should be given additional recognition as well as grants.

➢ The schools which, as whole, taking special emphasis for improving their in-house environment neat and clean through teacher and student participation should be labeled as green/environmental friendly school.

➢ The teachers who are seriously and effectively promoting environmental awareness and behavioral changes among students and society should also be rewarded.

5.4 SCOPE FOR FUTURE RESEARCH

It is perceived that research in any field of humanities or science or engineering or medical is an ongoing as well as evolving process. Surely there can be little doubt about the urgent need for promoting change in attitudes and behavior in relation to the environment; for encouraging people to appreciate and enjoy the world around them; and for equipping policy-makers of both present and future with the knowledge, skills and attitudes towards environment that will encourage them to adopt environmentally responsible approaches. There is active debate going on around the world on how to achieve these goals and on the developing most appropriate strategies for developing and successful implementation of environmental education. The present work on “environmental awareness and attitude of pre-service and in-service elementary and secondary school teachers” was also a part of this debate and focused on finding the status of environmental awareness and attitude of pre-service and in-service elementary and secondary school teachers in the delimited area i.e. three districts of Haryana. The researcher has yielded some interesting information on these aspects through this work. At
the same time, researcher is of the opinion that there is significant dearth of the knowledge and research in the area of environmental education whether it is availability of instruments of testing, or the environmental literacy level of teacher educators or teacher trainees of different levels i.e. elementary, secondary and senior secondary, or the environmental literacy levels of students, or effects of educational background (arts/science/commerce) of students as well as teachers on their environmental literacy level. The present research work has also had some inherent delimitation such as the study was executed in three districts of Haryana, only pre-service and in-service elementary and secondary teachers were considered. Therefore, it can not be applied with uniformity to other teachers as well as areas in the state and the country. The researchers based on her observation make the following suggestions for future research in the area of environmental education and its successful implementation:

> Such studies should be initiated by the SCERT or NCERT for all levels of teachers and in all states so that the results can be seen in a holistic manner rather than in isolation for the delimited parameters and area of a particular study.

> The studies should also be started at college and university level as environmental science is also being taught as a compulsory subject at UG level; but national statistics shows that it is being trained by geography or chemistry or botany teachers, not by trained environmental teachers. Therefore, such studies will be helpful in promoting the environmental education in the higher education also.

> The reliable information should be gathered on environmental
awareness and attitude towards environment for rural vs urban, male vs female, science vs non science students as well as teachers.

➢ A study should be taken up for identification of factors responsible for attitudinal changes related to environment as the present study has reported that the awareness levels are satisfactory/high but there is serious lack of pro-attitude towards environment among the four categories of teachers.

➢ Studies can be conducted in the states like Uttrakhand or others where formal environmental education is in place, to find the effects of EE on attitude towards environment and behavior of teachers and students. This may guide the course content makers to improve on the course content by changing the content or by incorporating additional inputs such as field visits.

➢ Research work can be initiated to find out the impact of different environmental education and management programmes initiated by state and central government as well as directed by the Hon’ble courts on the society as whole.

➢ The research can be carried out for the development of instruments, which are comprehensive in nature and demonstrate significant reliability and validity, for data collection on environmental awareness and attitude towards environment of individuals. This will be very important and helpful for the researchers in this area of studies.

5.5 LIMITATIONS OF THE PRESENT STUDY

There have been limitations also in carrying out the study on "environmental awareness and attitude toward environment of pre-service and
in-service elementary and secondary school teachers”, which might have implications for further research in the field of environmental education. First one was in the selection of the instrument/tool for the research, the researcher choose the tools namely “Environmental Awareness Aptitude Measure test–(EAAM)” prepared by Dr. Praveen Kumar Jha and “Environmental Pollution Attitude Scale (EPAS) by Dr. M. Rajamnaikam published by Rakhi Prakashan, Agra (India)” after doing extensive survey about the validity and reliability of the test as well as their availability. The researcher feels that there could have been better instruments but their availability within the time frame and money was a big contain. Afterwards, relying on the self reported data may not sufficiently capture the pre-service and in-service elementary and secondary school teacher’s environmental literacy. It could be possible that teachers from one institution have filled the test after having discussion among themselves. Thus, the assumption that the opinions reflected in the form of answers to the questions in the test are solely of the subject (s) could be questionable. Subsequent research is needed to verify the consistency and accuracy of present finding through multiple measures and methods. Collecting qualitative data in future research might provide a broader and more comprehensive picture of these teacher’s environmental awareness and attitude levels. Also in the present study the teachers under different categories i.e. pre-service and in-service elementary and secondary school teachers were examined without considering their sex, their teaching experience and educational background due to time constraints and unequal sample size under each category.
Future research efforts may be able to investigate effects of such parameters on environmental awareness and attitude of teachers of both levels. However, in the last but not least, researcher is of the opinion that the findings of present are quite important and substantive in nature to make solid foundation of for further research in this direction.