CHAPTER SEVEN

SUMMARY OF CONCLUSIONS

CONTENTS

7.01 Introduction

SECTION ONE (Chapterwise summary)

7.02 Chapter One

The problem

A) Need of the problem

B) Statement of the problem

C) Operational definitions

D) Hypotheses

E) Objectives of the study

F) Significance of the study

G) Scope and limitations of the study

7.03 Chapter Two -

Review of related literature

7.04 Chapter Three

Procedure

7.05 Chapter Four

Survey - Analysis and interpretation

A) General characteristics of the teacher trainees
### CONTENT

| B) Specific observations about the responses | 224 |
| C) Testing of the hypotheses | 225 |

7.06 Chapter Five

**The Experiment**

226

7.07 Chapter Six

**Results of the Experiment**

228

### SECTION TWO

7.08 Implications of the study 229

7.09 Applications of the study 231

7.10 Suggestions for further study 232

7.11 Problems for further study 233
CHAPTER SEVEN

SUMMARY OF CONCLUSIONS

7.01 Introduction

This chapter summarises each chapter and enlists implications of the study. The chapter contains two sections. Section one contains the chapterwise summary. The implications of the study, suggestions and problems for study are in the second section.

SECTION ONE (Chapterwise summary)

7.02 Chapter One - The Problem

A) Need of the problem

Development, quality of life and environment are closely related concepts. Improvement of quality of life is the goal of development. Quality of life is generally assessed in terms of following variables.

i) Biological variable

ii) Economic variable

iii) Social variable

iv) Environmental variable
iv) Humanistic variable

Environment is one of the variables of quality of life. It has major impact on other variables. Environmental imbalance has adverse effects on health of people. Further environmental imbalance adversely affects access to the basic needs of people, income level of people, their social situation and their education. Consequently quality of life worsens.

Societies everywhere are recognising the causes and effects of environmental imbalance. Environmental perspective is changing our ideas of development. In the report of Brutland Commission, 1987, 'Our Common Future' the term 'Sustainable Development' was introduced. It means 'Meeting the needs of present generation without compromising the needs of future generation.' The definition suggests that environment must be treated with utmost care for the sake of our future.

Environmental protection is responsibility of both, Government and public.

Permanent solutions to the environmental problems demand a basic change in the value system of people which develops from childhood. Bringing about fundamental
reorientation in the values fall within the realm of education.

As the Belgrade Charter (A charter prepared in international workshop at Belgrade, 1975, stating Global Framework for Environmental Education) points out:-

The reforms of educational systems and processes is central to the building of this new development ethic. Government policy makers can order changes and new development approaches can begin to improve the world's condition but all of these are no more than short term solutions, unless the youth of the world receives a new kind of education.

As such environmental education is an effective way to develop proper attitudes and values among people so that they can protect their environment with care. However this kind of education is important right from the school level as school children are in developmental phase of their life.

Considering the importance of environmental education, the components of environment have been introduced in school curriculum in India. The execution of curriculum is the responsibility mainly of a teacher. For this, he requires different characteristics such as familiarisation with the environment content and favourable attitudes and values.
towards environment. As Awareness is the first step towards the development higher affective characteristics like attitudes and values, it is indispensable for teachers. As such training of teachers for environmental awareness becomes important. To train the teachers for environmental awareness the study was undertaken. Thus an important relationship which establishes need of the study can be visualised as follows.

```
Environmentally aware teachers → Development of environmental attitude among teachers → Environmental approach in teaching
                                 ↓                                             ↓
Environmental friendly citizens ─── Environmental attitudes among children
                                 ↓                                             ↓
                                   Conservation of environment
                                             ↓
                                             Development of quality of life
```
B) Statement of the problem

The problem was stated as follows-

A survey of environmental awareness among teacher trainees in colleges of education affiliated to University of Poona for finding out the present level of environmental awareness among them with a view to developing and testing the effectiveness of the training programme of raising the level of environmental awareness.

C) Operational definitions

1. ENVIRONMENT - Environment includes all the factors surrounding and affecting an individual. These factors are natural, social, economical, political, religious, cultural etc. Taking into consideration the comprehensive nature of environment and the limitations of the researcher, this particular study took into account the natural environment.

2. AWARENESS - Environmental awareness is the state of knowledge or understanding of environmental events. It has two components, cognitive and affective.

Cognitive component of environmental awareness

Cognitive component implies possession of
environmental information only.

Affective component of environmental awareness

Affective component is the state which shows evidence of information processing.

3. PROSPECTIVE TEACHERS [TEACHER TRAINEES]

Any student of College of Education, affiliated to University of Poona, enrolled for B. Ed. (regular), in the year 1993-94 and studying through Marathi medium.

4. PROGRAMME - It is a series of learning experiences designed to achieve, within a specified period of time, certain specific instructional objectives.

5. TEACHER TRAINEE OF ARTS FACULTY - A teacher trainee who has obtained the degree of B.A. of any recognised University in India.

6. TEACHER TRAINEE OF SCIENCE FACULTY - A teacher trainee who has obtained the degree of B.Sc. of any recognised University in India.

7. TEACHER TRAINEE OF COMMERCE FACULTY - A teacher trainee who has obtained the degree of B.Com. of any recognised University in India.

8. RURAL TEACHER TRAINEE - A teacher trainee who has passed his secondary school examination from a
school in rural area.

9. **URBAN TEACHER TRAINEE** - A teacher trainee who has passed his secondary school examination from a school in urban area.

10. **RURAL AREA** - An area, having population less than or equal to 10,000.

11. **URBAN AREA** - An area, having population more than 10,000.

**D) Hypotheses**

The hypotheses of the study were formulated as follows.

1. There is a positive gain in the average performance in environmental awareness of the experimental group after the training programme.

2. There is a positive gain in the average performance in environmental awareness of the experimental group as compared to the control group.

3. There is **no** significant difference in the average performance in environmental awareness of teacher trainees of Arts, Science and Commerce faculties.
4. There is a significant difference in the average performance in environmental awareness of the rural teacher trainees as compared to urban teacher trainees and it is in favour of rural teacher trainees.

E) Objectives of the study

The objectives of the study were -

i) To prepare a tool to test the level of environmental awareness

ii) To find the level of environmental awareness among the teacher trainees

iii) To develop a training programme to raise the level of environmental awareness among prospective teachers

iv) To implement the training programme and to test its effectiveness.

F) Significance of the study

The study intended to prepare the programme to raise the level of environmental awareness.

It is also intended to explore the relationship between i) environmental awareness and faculty of teacher trainees ii) environmental awareness and areawise
background of teacher trainees. As such the contribution of the study will prove useful to teacher educators, curriculum planners, teachers and researchers.

The tool prepared will help the interested persons to test the environmental awareness of both the levels, cognitive and affective.

The programme will be helpful to teacher trainers.

The findings will also be useful to voluntary organisations, social workers, and other institutions of non formal education who would like to plan teacher training programmes in environmental education.

The findings will be useful to any trainer intending to impart environmental education to graduates in any discipline.

G) Scope and limitations of the study

In order to interpret and use the findings of the study it is essential to note the scope and limitations of the study.

1. The present study covers teacher trainees, studying through Marathi medium in all the colleges of education affiliated to University of Poona. The study was
limited to prospective teachers of secondary level e.g. those doing B.Ed. The reason behind the selection of these trainees was two fold. i) They will be responsible for education of young children who will be citizens of tomorrow. ii) Some of the teacher trainees will be teacher educators of primary teacher's training course. They will be responsible for training of primary teachers who are in turn responsible for the education of primary children.

2. The programme in the study was executed for ten consecutive days for one to one-and-half hour daily.

3. The researcher herself implemented the programme. As such the experimenter and investigator was the same person.

4. This study is limited to the survey of environmental awareness of prospective teachers studying through Marathi medium only. The prospective teachers of other media were not surveyed.

5. Conclusions made from the study will be applicable to such colleges where the physical and human resources, institutional climate are similar to the colleges where the study was undertaken.
6. The study was undertaken for the students who were at least graduates. The result of the study are applicable to the population, having graduation as the minimum educational qualification.

7. The programme was implemented in Tilak College of Education, a college in an urban area. While using the programme in other colleges similar resources may not be present. The results of the programme are applicable to that situation, where similar resources are present.

8. The study is limited to environmental awareness at cognitive and affective level. The study dose not consider awareness at action level.

9. The study investigates environmental awareness among prospective teachers. Certain parameters of environmental awareness are specified. The research is limited to the study of specified parameters only.

7.03 Chapter Two - Review of related literature

The researcher went through the available literature related to environment, environmental education, psychological constructs like attitudes, values, awareness and their
measurement. These sources were classified as primary and secondary. The researcher found many books on environmental status of the world and India and different surveys and programmes. For ease of analysis the surveys were classified in four categories.

1. Environment and mass media
2. Factors affecting responsible environmental behaviour
3. Environmental attitude among people
4. Environmental education and school curriculum.

The contributions made by the previous researchers were studied. It was found that researcher had worked in different areas and age groups. They had used mainly questionnaires and interviews as tools of data collection.

It was found that researchers had developed different programmes in environmental education. Some were tested experimentally and some were not. The researcher found that the area of teacher education was neglected while developing the programme. Hence the researcher developed the programme for teachers and tested the efficiency of the programme experimentally.
7.04 Chapter Three - Procedure

This chapter describes the choice of research methods, development of the questionnaire and procedure of the survey.

The research problem demanded survey as a method of investigation since it was obligatory to have an idea of the environmental awareness among prospective teachers.

The parameters of environmental awareness were decided as-

i) ecological principles and information about environment.

ii) environmental problems

iii) effects of man's behaviour on environment.

It was decided to develop a questionnaire which would test both cognitive and affective components of environmental awareness. This decision was taken as no tool was available which could measure environmental awareness at cognitive as well as affective level.

The questionnaire was in two parts, Part One testing cognitive and Part Two testing affective component of environmental awareness. If a person is environmentally aware, the problems, events or phenomena related to
environment would stand boldly against the background. On the basis of this feature of awareness Part Two of the questionnaire was developed. The questionnaire was checked at each step by experts. It was finalised after two tryouts. The marking system for the items was decided.

The population consisted of teacher trainees of Colleges of Education, doing B.Ed. (regular), studying through Marathi medium, in the year 1993-94. The survey was conducted as soon as the colleges were opened. Total 258 teacher trainees were selected by random sampling. Care was taken while preparing and administering the questionnaire. This ensured reliable and valid data.

7.05 Chapter Four - Survey - Analysis and Interpretation

General characteristics of teacher trainees, observations about response patterns to items in the questionnaire, statistical procedures applied to test hypotheses and implications of the survey are discussed in this chapter.

A) General characteristics of teacher trainees

The researcher obtained the data about educational
background of teacher trainees, their teaching experience, their areawise background and their sources of environmental information. It was found that teacher trainees from Arts faculty were maximum and teacher trainees from Commerce faculty were minimum. 66.32% of the teacher trainees were having rural background and 33.68% were having urban background. Further it was found that rural teacher trainees spent some years in urban area and vice versa. 82.56% of the teacher trainees were collecting information about environment. The sources like newspapers, T.V. programmes, magazines, radio programmes, books discussion etc. were used by the teacher trainees to collect environmental information.

B) Specific observations about the responses

The responses to items gave a general idea about awareness of environmental parameters. Following conclusions are based on these observations

1. Teacher trainees have less information about basic ecological principles and major environmental events.

2. Teacher trainees were more aware of environmental problems than effects of man's activities on environment.
3. Teacher trainees were more aware of air and water pollution, deforestation than any other environmental problems.

4. Cognitive component of environmental awareness was more developed among men and affective among women.

C) Testing of hypotheses

The analysis of variance was used to test the hypotheses of the survey. Two tailed t test was used to see the significance of difference between means. Cognitive and affective components of environmental awareness were measured separately. Both the hypotheses were restated on the basis of statistical analysis. The restated hypotheses were -

1. i) There is a significant difference in the average performance in cognitive component of environmental awareness of teacher trainees of Arts, Science and Commerce faculties. Science and Commerce teacher trainees were on par on cognitive component. Science teacher trainees were more aware than Arts teacher trainees. Arts and Commerce teacher trainees were on par on cognitive component.

   ii) There is a significant difference in the average
performance in affective component of environmental awareness of teacher trainees of Arts, Science and Commerce faculties. 
Science and Commerce teacher trainees were on par on affective component. Science teacher trainees were more aware than Arts teacher trainees. Commerce teacher trainees were more aware than Arts teacher trainees.

2. i) There is no significant difference in average performance in cognitive component of environmental awareness of rural and urban teacher trainees.

ii) There is a significant difference in average performance in affective component of environmental awareness of rural and urban teacher trainees and it is in favour of urban teacher trainees.

The survey helped the researcher to develop a training programme of raising the level of environmental awareness. It developed an insight into content and methods of training programme.

7.06 Chapter Five - The Experiment
Decisions regarding design of the experiment; selection of sample, tools; method of developing training programme; interactions during the execution of the programme are
discussed in this chapter.

Pretest posttest control group design was selected for the experiment. Tilak College of Education was selected for the execution of the experiment. The tool for pretest and posttest was the questionnaire developed by the researcher. The experiment and control group were randomly selected according to the requirement of the design.

During the development of the programme the researcher went through the following processes.

1. Deciding the content of the programme
2. Planning the learning experiences
3. Preparation and try out of game prepared for the programme
4. Resource identification
5. Deciding the tools to be used for evaluating instructional objectives.

While developing the programme the contents were determined on the basis of parameters of environmental awareness. Learning experiences were based on the contents and objectives of the programme and characteristics of the trainees. Different methods and activities were planned for the training. Games were prepared and in-class material
was developed.

The programme was implemented for ten days. The researcher had discussed the interactions during the execution of the programme. The posttest was given after four days of the completion of the programme.

7.07 Chapter Six - Results of the experiment

The chapter describes the statistical procedures applied to test the hypotheses of the experiment, analysis of the data obtained by the experiment and conclusions.

One tailed t test was used to test the hypotheses. Both the hypotheses were retained. They were -

i) There is a positive gain in the average performance in environmental awareness of the experimental group, after the training programme.

ii) There is a positive again in the average performance in environmental awareness of the experimental group as compared to control group.

Pretest, posttest scores of experimental and control groups were subjected to graphical analysis. Observations of the graphs supported the results obtained by statistical analysis of the data of experiment.
When the need of the problem was discussed it was stated that it is necessary to raise the level of environmental awareness among prospective teachers. Review of related literature has revealed that suitable training programme can raise the level of environmental awareness. The experiment has explored the same relationship between the variables. Hence if one wants to raise the level of environmental awareness among teachers the training programme may be implemented.

SECTION TWO

7.08 Implications of the study

In the light of the conclusions of survey and experiment following implications are drawn.

1. Environmental education, when considers natural environment, should not concentrate on teaching of air, water pollution or deforestation only. While teaching, other aspects of environment like pollution due to chemicals, atomic pollution, sound pollution, energy management must be given due importance. Such a wide perspective of environment needs to be taken into account while educating the students. It will help improve environmental awareness.
2. 'Man is a component of biosphere.' This must be central theme of any environmental training programme. If the trainees feel that they are part and parcel of the environment then only the change as per programme is possible. Such a feeling is helpful to foster the ideas of sustainable development among the trainees in the long run.

3. Environment is a megasystem having complex structure and containing interrelated components. No component is isolated. When such a view of environment is provided to the trainees, then their environmental awareness will change in positive direction.

4. Environmental awareness is tested with the help of certain pictures and paragraphs and multiple choice questions. A tool containing similar items may be prepared to test population awareness, social awareness or any other type of awareness.

5. It was observed that Arts and Commerce faculty students assume that natural environment comes under the purview of Science faculty. This attitude towards the scope of environmental studies can be changed if suitable experiences are provided to them.
7.09 Applications of the study

The findings of the study can be useful in following ways.

1. The National Policy of Education 1986 has treated protection of environment as one of the ten core elements of the curriculum. In the school curriculum components of environmental education are introduced. The teachers may need inservice training to deal with the components. The training programme developed by the researcher can be used to develop environmental awareness among teachers.

2. Considering the important role of prospective teachers, it is essential that they should know certain ecological principles, environmental problems and their causes. Colleges of Education can use their available resources and implement the programme as a part of training of prospective teachers.

3. While executing the syllabus the teachers need guidance for methods of teaching the content areas of environment. The present programme, though developed for teachers, can be useful for them to plan methods of teaching of environmental content.
4. The tool is prepared by the researcher to test environmental awareness. However some items in the tool can be used to test social awareness among graduates.

5. The ten days efforts of the researcher brought about the change in environmental awareness of teacher trainees. Thus in busy schedule of training colleges or other educational institutes the training programme can be implemented to improve environmental awareness.

6. Environmental awareness of any college student, graduate person, teachers, teacher educators and college teachers can be tested by the tool. The programme can be used for them. This will help improve environmental awareness among them.

7.10 Suggestions for further study

In order to improve environmental awareness among prospective teachers the following suggestions are made.

i) The questionnaire to test the level of environmental awareness should be a series of test (test battery). It should include tests of factors like aggressiveness that affect behaviour of a person.

ii) One test should consist similar items so as to make
statistical analysis easy.

iii) The questionnaire can be made shorter, so as to avoid mental fatigue.

iv) While implementing the programme all the causes water pollution, unique or common should be discussed.

7.11 Problems for further study

Following problems for further research are suggested.

i) To prepare a programme for raising environmental awareness in teacher educators.

ii) To prepare a test battery to test the level of environmental awareness.

iii) A study of existing environmental education patterns in higher education.

iv) To prepare a training programme of bringing environmental approach in teaching, for prospective and experienced teachers.

iv) Study of relation between environmental awareness and mass media.

vi) To prepare a training programme to develop problem solving skills, issue investigation skills among teachers.

*******************************