

**UNIT COST OF HIGHER EDUCATION:
A CASE STUDY OF COLLEGES IN MIZORAM**

VANLALCHHAWNA



**THESIS SUBMITTED IN
FULFILMENT OF THE REQUIREMENT OF THE DEGREE OF
DOCTOR OF PHILOSOPHY IN ECONOMICS**

**DEPARTMENT OF ECONOMICS
NORTH-EASTERN HILL UNIVERSITY
MIZORAM CAMPUS : AIZAWL
1997**

UNIVERSITY LIBRARY

Acc. No. 103 247

DATE RECEIVED _____
BY _____
CLASSIFIED BY _____
SERIALIZED BY _____
INDEXED BY _____
FILED BY _____
2-3-2001

THE NORTH - EASTERN HILL UNIVERSITY

MIZORAM CAMPUS : AIZAWL

Month NOVEMBER Year 1997

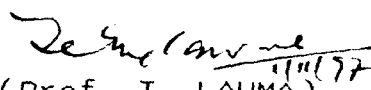
DECLARATION

I, Mr. Vanlalchhawna, hereby declare that the subject matter of the thesis entitled UNIT COST OF HIGHER EDUCATION: A Case Study of Colleges in Mizoram is the record of work done by me, that the contents of this thesis did not form basis of the award of any previous degree to me or to the best of my knowledge to anybody else, and that the thesis has not been submitted by me for any research degree in any other University/Institute.


This is being submitted to the North-Eastern Hill University for the award of the degree of Doctor of Philosophy in Economics.


Head
Deptt. of Economics

HEAD
Department of Economics
NEHU, Mizoram Campus
AIZAWL,


(Prof. T. LAWMA)
Supervisor

Professor
Department of Economics
NEHU, Mizoram Campus
Aizawl


(VANLALCHHAWNA)
Candidate

ACKNOWLEDGEMENT

It is a pleasure to offer a deep sense of gratitude to my Supervisor Prof. T. Lawma, Head, Department of Economics, NEHU, Mizoram Campus for his valuable guidance and constant encouragement through out the research works. I do admit that this study would not have been completed without his untiring help, advice and inspiring suggestions.

I am greatly indebted to all the Principals and staff of the colleges for their help and co-operation during data collection and making all necessary information and documents available and accessible to me. I am also thankful to the staff of Directorate of School Education (Statistical Wing), Directorate of Higher & Technical Education and Mizoram Assembly Secretariat.

I also owe a great deal to my colleagues, friends and well-wishers who gave me their support and favour generously. Lastly, I express my gratitude to my family who had to bear all the hardships through out the period of study.

Dated Aizawl
the 18th Nov. 1997.

V. Chhanna
(VANLALCHHAWNA)
Department of Economics
North Eastern Hill University
Mizoram Campus: Aizawl

CONTENTS

	Page No.
Candidate's declaration	i
Acknowledgement	ii
List of Tables	vii- x
List of Figures	xi-xii
CHAPTER 1 : INTRODUCTION	1-54
1.1 Concept and Significance of Human Capital	1
1.2 Education and Economic Development	5
1.3 The Problem : Nature, Scope and Coverage	17
1.4 Objectives of the Study	25
1.5 Importance of the Study	26
1.6 Conceptual Framework	27
1.7 Taxonomy of Cost of Education	30
1.8 Methodology and Sources of Data	37
1.8.1 Calculation of Institutional Cost	39
1.8.2 Calculation of Direct Private Cost	41
1.8.3 Selection of the Sample	42
1.8.4 Collection of Data	46
1.8.5 Cost of Education at Current and Constant Prices	48
1.9 Scheme of Chapters	49
References	50
CHAPTER I : SOCIO-ECONOMIC PROFILE OF THE STATE	55-90
2.1 Location, Area and Topography	55
2.2 Climate and Rainfall	57
2.3 Social and Cultural Background	58
2.4 Administrative Structure	61
2.5 Resource base of the Economy	65

2.5.1	Human Resources	65
2.5.2	Land Resources and Utilization Pattern	74
2.5.3	Forest Resources of the State	76
2.6	Growth of State Domestic Product	79
2.7	Agriculture and the State Economy	81
2.8	Industrial Sector	84
2.9	Infrastructure Development	88
	References	90
CHAPTER III: REVIEW OF LITERATURE		91-139
CHAPTER IV : GROWTH OF PUBLIC EXPENDITURE ON EDUCATION		140-196
4.1	Introduction	140
4.2	Educational Profile of the State	141
4.2.1	Educational Structure of the State	142
4.2.2	Types of Educational Institutions	143
4.2.3	Administrative Organisation	144
4.2.4	Trends in Students Enrolment by levels	145
4.2.5	Growth of Educational Facilities	148
4.2.6	Levels of Literacy	150
4.2.7	District-wise analysis of Literacy rates	151
4.2.8	District-wise Number of Institutions, Enrolment and Teachers	154
4.2.9	Professional and Technical Education	158
4.3	Trends of Educational Expenditure in Mizoram	161
4.3.1	Growth of Public Expenditure on Education	161
4.3.2	Share of Education in the State's Plan	171
4.4	Unit Costs of Education	174

4.4.1	Unit Costs of Education at the Pirmary School level	175
4.4.2	Unit Cost at the Middle School level	177
4.4.3	Unit Cost of Education at the High School level	179
4.4.4	Unit Cost of College Education in Mizoram	181
4.4.5	Optimum Enrolment Size and Unit Costs of Education	182
4.5	Sources of Fund for Education in Mizoram	186
4.5.1	Pattern and Procedure of Grant-in-aid system in the state	186
4.5.2	Sources of Fund for Elementary and Secondary Education	190
4.5.3	Sources of Fund for College Education	191
	References	195

CHAPTER V : ANALYSIS OF INSTITUTIONAL COST OF HIGHER
EDUCATION

		197-233
5.1	Introduction	197
5.2	Structure of College Education in Mizoram	198
5.3	Growth Trends of Institutional Unit Cost	200
5.4	Pattern and Trend of Unit Recurring Cost	203
5.5	Pattern and Trend of Non-Recurring or Capital Cost	206
5.6	Net Institutional Cost Per Student	209
5.7	Unit Cost and the Pattern of Management and ownership	211
5.8	Institutional Cost by College-Type (Course-Wise)	220
5.9	Relationship between Enrolment and Cost per student	224

5.10	Pooled Regression Analysis	230
5.11	College-wise Optimum Size and Unit Cost of College Education	231
	Reference	233
 CHAPTER VI : ANALYSIS OF PRIVATE COST OF HIGHER		
	EDUCATION	234-258
6.1	Introduction	234
6.2	Components of Direct Private cost	237
6.3	Socio-Economic Status and the Private Cost of Education	246
6.3.1	Analysis of Annual Private Cost by Income group	249
6.3.2	Analysis of Private Cost by Parental occupation	251
6.4	Net Private Cost per Student	252
6.5	Estimates of Total Cost of Higher Education in Mizoram	254
	References	258
 CHAPTER VII : SUMMARY FINDINGS AND CONCLUSION		
		259-281
 APPENDICES :		
		282-293
Appendix - A :	State level Questionnaire	282-285
Appendix - B :	Institutional Level Questionnaire	286-290
Appendix - C :	Questionnaire for Students	291-293
 BIBLIOGRAPHY :		
		294-306
Brief Bio-Data of the Candidate:		307

LIST OF TABLES

Table No.	Particulars	Page No.
1.1	Growth of Recognised Educational Institution since 1951	19
1.2	Educational Expenditure as Percentage of GDP (Current Prices)	22
1.3	Percentage of Educational Expenditure on Education Department to Total Budget	23
1.4	Degree Colleges included in the Study	44
1.5	Distribution of Sample Population of the Students	45
2.1	Rainfall in Mizoram 1990-1992 (in cms)	58
2.2	District-wise Areas, Distribution of Villages, Towns and Blocks	64
2.3	Key Population Statistics of Mizoram 1901-1991	66
2.4	Distribution of Population, Sex Ratio, Growth Rate and Density of Population by District (1991)	68
2.5	Birth & Death Rate, District-wise, Mizoram, 1991	69
2.6	Decadal Growth Rate of Urban Population : Mizoram	70
2.7	Total Workers in Mizoram, 1991	72
2.8	Occupational Classification of Workers, 1991 (Mizoram & India)	73
2.9	Land Use Classification in Mizoram, 1988-89 (Provisional)	75
2.10	Administrative Classification of Forests in Mizoram	77
2.11	Forest Revenue in Mizoram	78
2.12	Net State Domestic Product at Factor Cost and Per Capita Income at current prices, Mizoram (1980-81 to 1991-92)	79
2.13	Net State Domestic Product at Factor Cost by Industrial Origin at Current Prices, Mizoram 1985-86 to 1991-92	

2.14	Indicators of Agriculture Development	83
2.15	Pattern of Land Use under Agriculture in Mizoram	84
2.16	District-wise SSI Units and Industrial Workers in Mizoram (1990)	85
2.17	Category-wise Distribution of Industrial Units, Employment, Production & Investment in SSI & CI Mizoram (1990)	87
2.18	Indicators of Infrastructure Development, Mizoram	89
4.1	Trends in Students enrolment by levels, 1951 to 1993 Mizoram	147
4.2	Growth of Educational Facilities by levels, 1951-52 to 1993 - 94, Mizoram.	149
4.3	Literacy Rates - Mizoram and All India (1961 to 1991)	151
4.4	District and Block-wise Literacy Rate (1991)	153
4.5	District-wise Number of Institutions, Enrolment and Teachers (1991-92)	155
4.6	District-wise Number of Institution per thousand population (1991)	158
4.7	District-wise Student Enrolment per Total Population	158
4.8	Number of Professional and Technical Education in N.E. India (As on September, 1992)	159
4.9	Growth of Public Expenditure on Education 1972-73 to 1993-94, Mizoram.	162
4.10	Growth Rates and Elasticity of Public Expenditure on Education	163
4.11	Distribution of Public Educational Expenditure by levels of Education in Mizoram 1972-79 to 1993-94 in Current prices	165
4.12	Distribution of Public Educational Expenditure by levels of Education in Mizoram (1972-73 to 1993-94) in constant prices	167
4.13	Estimated Linear Trend of Public Educational Expenditure in Mizoram (Current and Constant Prices)	170
4.14	Per Capita budgeted expenditure (Revenue account) on Education, North-East India	171

4.15 Annual Plan Expenditure/Outlay on Education, 1972-73 to 1993-94, Mizoram	172
4.16 Expenditure on Education in Seventh Five Year Plan (1985-90) and Proposed Outlay during Eight Plan (1990-95)	173
4.17 Plan and Non-Plan Expenditure on Education, Mizoram	174
4.18 Unit Cost of Education, Primary School	176
4.19 Unit Cost of Education, Middle School	178
4.20 Unit Cost of Education, High School Level	180
4.21 Unit Cost of Education, College Level	182
4.22 Quadratic Cost Functions of different levels of education in Mizoram	184
4.23 Sources of Fund for Primary, Middle and High School	191
4.24 Sources of Fund for College Education in Mizoram	192
4.25 Distribution of Public Fund between Government Colleges and Private Colleges in Mizoram, 1987-88 to 1993-94	193
5.1 Category wise Distribution of Colleges in Mizoram, 1993-94	199
5.2 Growth of Institutional Unit Cost, 1983-84 to 1993-94	202
5.3 Pattern and Trend of Unit Recurring Cost, 1983-84 to 1993-94	204
5.4 Pattern and Trend of Unit Non-Recurring (Capital) Cost 1983-84 to 1993-94	207
5.5 Institutional Cost and Fee receipts per student, 1983-84 to 1993-94 (in current and constant prices)	210
5.6 Pattern of Unit Cost in Government and Private Colleges, Mizoram, 1993-94	213
5.7 Institutional Cost and Fee Receipts per student in Government and Private Colleges, Mizoram, 1993-94	219
5.8 Average Annual Cost per student College-type (Course-wise)	221

5.9	Enrolment and Cost of Education (Observed and estimated) per student by different colleges at constant prices of 1980-81, Mizoram, 1983-84 to 1993-94	225&226
5.10	OLS Estimates of Functional Relation between Enrolment size and Unit Cost of Education in different colleges in Mizoram.	227
5.11	Quadratic Cost Curves of different colleges included in the study.	232
6.1	Components of Direct Private Cost of Higher Education 1993-94	237
6.2	Annual Average Private Cost in Different Courses, 1993-94	240
6.3	Average Private Cost in Colleges under Different Management system, 1993-94	245
6.4	Number of Students by Family Groups	246
6.5	Number of Students by Parental Occupation	248
6.6	Annual Private Cost of Education by Family Income	249
6.7	Annual Private Cost of Education by Parental Occupation	251
6.8	Average Net Private Cost of Higher Education in Mizoram 1993-94	253
6.9	Total Cost of Higher Education in Mizoram 1993-94	256

LIST OF FIGURES

Figure

- | No. | Particulars |
|-----|---|
| 1.1 | Taxonomy of Cost of Education |
| 2.1 | Location of Mizoram |
| 2.2 | Mizoram Administrative Divisions |
| 4.1 | Mizoram Educational Structure |
| 4.2 | Public Expenditure (Revenue Account) on Education in Mizoram (at Current Prices) |
| 4.3 | Public Expenditure (Revenue Account) on Education in Mizoram (at Constant 1980-81 Prices) |
| 4.4 | Unit Cost of Primary School Education, 1976-77 to 1991-92 (at Constant 1980-81 prices) |
| 4.5 | Unit Cost of Middle Education, 1976-77 to 1991-91 (at Constant 1980-81 prices) |
| 4.6 | Unit Cost of High School Education, 1976-77 to 1986-87 (at Constant 1980-81 Prices) |
| 4.7 | Unit Cost of College Education, 1976-77 to 1986-87 (at Constant 1980-81 Prices) |
| 5.1 | Trend of Institutional Unit Cost of Higher Education 1983 to 1993 |
| 5.2 | P.U. College :
a) Regression between enrolment and cost per Student
b) Change in Enrolment and Cost per student 1983 to 1983 |
| 5.3 | Aizawl College:
a) Regression between enrolment and cost per Student
b) Change in Enrolment and Cost per student 1983 to 1983 |

- 5.4 Zirtiri Women College:
 - a) Regression between enrolment and cost per Student
 - b) Change in Enrolment and Cost per student 1983 to 1983
- 5.5 Champhai College:
 - a) Regression between enrolment and cost per Student
 - b) Change in Enrolment and Cost per student 1983 to 1983
- 5.6 Lunglei College :
 - a) Regression between enrolment and cost per Student
 - b) Change in Enrolment and Cost per student 1983 to 1983
- 5.7 Saiha College :
 - a) Regression between enrolment and cost per Student
 - b) Change in Enrolment and Cost per student 1983 to 1983
- 5.8 Hrangbana College:
 - a) Regression between enrolment and cost per Student
 - b) Change in Enrolment and Cost per student 1983 to 1983
- 5.9 Hnahthial College:
 - a) Regression between enrolment and cost per Student
 - b) Change in Enrolment and Cost per student 1983 to 1983
- 5.10 J.B. College:
 - a) Regression between enrolment and cost per Student
 - b) Change in Enrolment and Cost per student 1983 to 1983
- 5.11 Lawngtlai College:
 - a) Regression between enrolment and cost per Student
 - b) Change in Enrolment and Cost per student 1983 to 1983
- 5.12 Relationship between enrolment and cost per student (1980-81 prices) Pooled data.

CHAPTER - I

INTRODUCTION

CHAPTER - 1

INTRODUCTION

1.1 Concept and Significance of Human Capital.

The process of economic development involves a number of factors such as physical, financial and human resources. Conventional economic analysis on capital and investment theory usually concentrated on investment in physical capital assets such as machines, tools, factories and buildings as strategic inputs for economic growth and development. It was contented that the dynamics of economic growth and fluctuation in output and income could largely be explained and analysed in terms of change and movement in the level of investment in physical capital assets. However, since the middle of 1950s, studies on economic growth in advanced countries revealed the important role played by non-material investment especially human resource. It was found that the growth of capital stock was of relatively minor importance in accounting for the growth of total output (Abromovitz, 1956; Solow, 1957). It was further realised that investment in human capital was a critical factor in the development process of a nation and that investment in human beings had been the major source of economic growth in the advanced countries. (Shultz, 1960, 1961; Becker, 1960, 1975; Dennison, 1962).

Human Capital implies the skill, capacities and abilities possessed by an individual which enable him to earn an income (Bannock, et al, 1981). It is now universally accepted that human capital is the most fundamental of all economic resources. Prof. Frederic Harbison (1973) observed : "Human resources, not capital, nor income, nor material resources, constitute the ultimate basis for wealth of nations. Capital and natural resources are passive factors of production; human beings are the active agents who accumulate capital, exploit natural resources, build social, economic and political organisation; and carry forward national development. Clearly a country which is unable to develop the skills and knowledge of its people and to utilize them effectively in the national economy will be unable to develop anything else".

T.W. Schultz (1981), a pioneer in studying economic process leading to human capital formation and its impact on economic growth, stated that a decisive factor in the development process of a nation and securing human welfare is investment in people and knowledge. The most important economic resource in the world, according to Schultz, consists of the acquired abilities of people - their education, experiences, skills and health. It is human capital, not space, energy, cropland or other physical properties of the earth which is decisive in improving the welfare of poor people throughout the world. Investments in population quality through schooling, work experience, and improvement in health enhance human capital and contribute significantly to productivity and to personal satisfaction. Moreover, increases in

the acquired abilities of people and advances in useful knowledge hold the key to future economic productivity and to its contribution to human well-being.

Human capitals are developed in many ways. The principal activities for developing human skills, knowledge and capabilities, as Shultz (1961) suggests, may be identified as follows :

- (1) "Health facilities and services, broadly conceived to include all expenditures that affect the life expectancy, strength and stamina, and the vigour and vitality of people;"
- (2) "on-the-job training, including old-style apprenticeship organised by firms;"
- (3) "formally organised education at the elementary, secondary and higher levels;"
- (4) "study programmes for adults that are not organised by firms, including extension programmes notably in agriculture;" and
- (5) "migration of individuals and families to adjust changing opportunities."

These activities increase and enhance the knowledge, abilities and skills of workers. They bring about improvement in the quality of the population and raise the productivity of the labour force and therefore future income level. Thus, expenditure

on education and training, health, nutrition and migration could be regarded as investment in human resources. Because these expenditures are not merely consumer outlays to satisfy current needs; they have long-run favourable effects on efficiency of human being as productive agents in manner similar to investment in material resources.

Human capital is basically formed by education and training. The formation of human capital by education has numerous peculiar characteristics quite distinct from those of physical capital formation such as factories, buildings, machineries and other financial assets. Shultz (1987) identified the following distinct attributes of human capital formation by education :

- (a) "An individual's stock of human capital cannot be sold, nor can it be given to someone else. It goes with the individual wherever he or she may go. If an individual were to migrate to another country, the government cannot confiscate that person's human capital. Jews and other ethnic groups facing discrimination and the danger of being expelled have known this fact for ages."
- (b) "To take advantage of human capital, an individual must do it in person."
- (c) "The duration of the value of an individual's human capital cannot exceed his or her life span."

- (d) "In acquiring human capital the individual must invest some of his or her own time along with other resources, for example, in acquiring an education and the services of instructors."
- (e) "It is efficient to invest in human capital during the period of youth because the value of time is less than it is when the individual grows older and because there will be a greater number of years in which to benefit from the acquired human capital."
- (f) "Human capital depreciates over time as does physical capital. Some forms become obsolete in a short time because of changing circumstances. Other forms have long life even as circumstances change. It is exceedingly important to distinguish between short and long life investments, especially so in the case of education. "
- (g) "Women, for good reasons, invest in somewhat different forms of human capital than men."

1.2 Education and Economic Development :

The economic significance of education had long been recognised since the time of classical economists. Several of the classical economists like Adam Smith (1723-1790), Alfred Marshal (1842-1924) and John Stuart Mill (1808-1873) drew attention to the importance of education as a form of national investment, and considered the question how education should be financed. Adam Smith (1776) stressed the importance of education at various

points in the **Wealth of Nation** and pointed out that "a man educated at the expense of much labour and time..... may be compared to expensive machines". Other classical economists also observed that expenditure on education could be regarded as a form of investment that promised future benefits. Alfred Marshal (1890), emphasised the importance of education "as national investment" and in his view, "the most valuable of all capital is that invested in human beings". Russian economists, Strumilin (1924) had already examined the economic significance of education in the Soviet Union in the early parts of the twentieth century.

Recently, there was a revival of interest in the concept of investment in human capital in the advanced countries especially in U.S.A. and U.K. which stimulated new interest in the question between education and the economy. There has been tremendous growth of research works in the area of human capital formation especially through education and training. Bowman (1966) rightly described it as, "the human investment revolution in economic thought". The pioneering works in the field of investment in human capital were contributed by T.W.Shultz (1960, 1961), Walsh (1935), Jacob Mincer (1958), Gary S.Becker (1962, 1975), E.F.Denison (1962), and Kuznets and Friedman (1946). These economists and many others developed and analysed the concept of human capital treating education and training as a form of investment producing future benefits in the form of higher income for both educated individuals and for society as a whole and highlighted the catalytic role of education in the process of

technical transformation, socio-economic development and industrialisation in the advanced countries. Based upon these works, education has now been firmly established and asserted as an important factor contributing to economic development. According to Denison (1962), education contributes to growth of output and income at least in two distinct ways. First, it raises the quality and correspondingly the productivity of the labour force; and secondly, education accelerates the rate at which society's stock of knowledge itself advances. In fact, investment in education contributes to economic development by promoting the knowledge and application of science and technology to production process and developing innovation and research.

Education performs a variety of roles in the economy and discharges numerous functions in the process of growth (Prakash, 1996) :

- (i) "Education acts as the catalyst of socio-economic change by generating appropriate attitudes and growth environment. It furnishes information and knowledge base, rational thought, attitude and values to change the irrelevant and obsolete and to pave the way for the establishment of new order";
- (ii) "Education leads to greater degree of equalisation in the distribution of income and wealth through equalisation of opportunities. Investment in education tends to facilitate the vertical and upward movement of people belonging to lower income-occupation and social groups";
- (iii) "Education supplies qualified manpower to meet human capital requirements of the economy";
- (iv) "Education generates intermediate and final demand for the output of other sectors which it uses as flow and stock

input directly and indirectly"; (v) "Education generates employment directly and indirectly"; (vi) "Education leads to improvements in individual hygiene and public sanitation, family planning, nutrition, health and shelter."

Expenditure on education is thus an investment that produces economic returns comparable to investment in physical capital activities. There are numerous empirical studies which show that investment in education contributes to increased labour productivity, higher individual earnings and higher level of national economic development. Equally strong evidence is also available to show that investment in education helps to a reduction in poverty and inequality in income distribution, in addition to social demographic and political development.

Since the mid-1950s, economists have attempted different approaches to examine and quantify the contribution of investment in education on the growth of output and income in the economy. According to W.C.Bowen (1963), four main approaches have been distinguished : (i) the simple correlation approach; (ii) the residual approach; (iii) the returns to education approach; and (iv) the manpower planning approach. In the following pages, an attempt has been made to give a brief account of the major findings and conclusions of these approaches.

(i) The Correlation Approach

This approach consists of correlating some overall index of educational activity with the index of the level of economic activity. Based on this correlation, several attempts have been

made to determine quantitatively the relationships between indicators of educational development and economic growth for a country. Svenilsson, et al., (1962) found a positive relationship between enrolment ratios and GNP per capita in a cross-section analysis of 22 European countries. Anderson and Bowmen (1963) found that primary schooling and literacy were more highly correlated with level of economic development than the provision of secondary or tertiary education.

One of the most valuable works in this approach was done by Harbison and Myers (1964). They examined the pattern of relationship between human resource development and stage of economic growth. Harbison and Myers found a close association between enrolment ratios at all levels of education and GNP per capita. Mc Clelland (1966) also tested the hypothesis that high educational attainment accelerates economic growth taking electricity consumption as an index of development. He found that countries with relatively higher levels of education embodied in the population developed at a higher rate.

Lockheed (1987) examined the effects of education on farmers efficiency in developing countries and found that education had a positive effect on farmers' efficiency. He observed education has a higher payoff for farmers in a changing modernizing environment than in a static traditional ones. In a cross-country study, Hicks (1987) found that the rapidly growing developing countries were those that had above average performance in both literacy and life expectancy. He examined the growth of a sample of 75 developing countries for the period

between 1960 and 1977. He found that literacy levels and growth are related. In addition, Hicks pointed out the strong correlation between literacy levels and life expectancy.

In the Indian context, mention may be made about the important works undertaken by Mukherji and Rao (1967), Choudhari (1969) and Ansari (1987, 1993). Mukherji and Rao examined the relationship between investment in education and economic growth in India. They concluded that only higher technical education could be considered as economic investment while other forms of expenditure might better be considered as consumption expenditure. Choudhari (1969) examined the relationship between education and productivity in Indian agriculture and obtained a positive relationship between literacy and yield per worker, literacy and yield per acre, primary education and yield per worker and primary education and yield per acre. Thus he found an associative relationship between education of farm workers and level of agriculture productivity. Ansari (1987, 1993) observed that neglect of education as judged in term of resource allocation has impeded economic growth in the country and due to low level of educational development, as measured by the level of literacy, the growth of Gross National Product (GNP) over the past decades of planning has been tardy and has increased at the rate of 3.5 per cent per annum. The coefficient of correlation between literacy and per capita income across the Indian states was positive and highly significant. The coefficient also indicated that in the states where there were more illeterates, the intensity of poverty was accordingly high.

(ii) The Residual Approach

This approach considers the increase in total national income of an economy over a given period of time and identifies as much of the total increases as possible with measurable inputs such as capital and labour and concludes that the residual is attributable to the unspecified inputs. Among the unspecified inputs, education and advances in knowledge are the most important. The names associated with this approach are Kendrick (1961), Solow (1957) Denison (1962) and Shultz (1961)

Kendrick found that for the US economy, over the period between 1889 and 1957, the combined input index increased at an average rate of 1.9 per cent per annum and the output index increased at about 3.5 per cent per annum, leaving a 'residual' increase of about 1.6 per cent. Thus 46 per cent of the increase in total output could be ascribed to the residual. Under the assumption of linear homogenous production and neutral technical change, Solow computed a 'residual' equal to 90 per cent of the increase in output per man hour in the US between 1919 and 1957. Denison estimated that 23 per cent of the growth of national and 42 per cent of growth of per capita income in the US economy from 1929 to 1957 has been accounted by education which constituted a part of the residual. Shultz estimated 60 per cent as a measure of 'unexplained' growth in the US economy between 1929 and 1956 and concluded that between 30 and 50 per cent of this residual could be taken as representing a return to the increased education of the labour force.

Dholakia (1974) attempted to quantify the contribution of education to economic growth in India. His study leads to the conclusion that the quality index of the labour force in India during 1948-49 to 1968-69 increased by only 7.5 per cent. This was because of the small base for which the educational development started, so that even a very rapid growth in it after the inception of planning in India had a very small overall effect. Prakash and Buragohain (1993) estimated that education accounted for 3 per cent of national income of India in 1961 and has grown to approximately 4 per cent in 1979.

(iii) The Returns to Education Approach

The education sector uses a vast amount of resources and it is therefore natural to ask the question relating to the returns from education, the allocative efficiency, and the efficiency of private decisions. The returns to education may be monetary or non-monetary and private as well as social. Generally, direct monetary benefits are taken into account in the calculation of rates of return to education.

Becker (1975) found that average money rates of return to education decreased as the level of education increased and college graduate earns more than high school graduates mainly because of their additional education. Becker, in his examination of the economics of on-the-job training, found that under perfect competition it was the workers rather than the employers that paid the cost of certain kinds of training. Miller (1960) calculated the lifetime income values by level of schooling.

Houthakker (1959) estimated, on the basis of alternative discount rates, the present value income streams associated with different levels of schooling. Hansen (1968) provided the estimate of the rates of return to investment in schooling in the United States. Psacharopoulos (1981) summarized the rates of return to education calculated for the developed and developing countries as follows:

- (a) returns to primary school are higher than those of other levels of education;
- (b) private returns exceed social returns, particularly at the university level;
- (c) all rates of return are above 10 per cent;
- (d) returns to education were higher in the poorer countries, reflecting the greater scarcities of trained manpower in these countries.

There are a number of studies relating to Indian data undertaken by different economists such as Nalla Gounden (1965), Mark Blaug, et al., (1969), Kothari (1967), Pandit (1972), Hussain (1967), Panchamukhi and Panchamukhi (1969), Choudhari and Rao (1970), Chaudhari (1979) and Tilak (1987). From these studies, a few general conclusions may be drawn as follows :

- (a) The returns to primary education are very high;
- (b) The returns to high school education are fairly good;
- (c) The returns to college education are low compared to school education;

(d) Professional education carries with it higher rates of returns than general education;

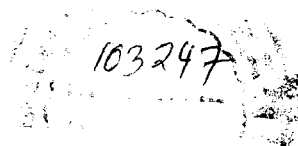
(e) Investment in education in India is not as profitable as investment in physical capital.

(iv) Manpower Planning Approach to Education :

This approach tries to give a rough estimate of the future requirements of educated and skilled manpower of an economy for different productive sectors. Modern economies require a wide range of human skills and knowledge possessed by manpower to generate the dynamics of development. In fact, it is impossible to utilize efficiently many of the complex forms of modern physical capital in the absence of a relatively high level of human skills. A country must plan in advance to have a group of scientists, technicians, administrative and managerial personnel in order to benefit fully from the new productive techniques that emerge from the advance in science and technology. The development of qualified human capital is the basic objective of manpower planning approach to education. Some of the techniques and methods adopted for projecting manpower requirements include; (i) estimation on the basis of the employer's opinion about their future manpower requirements; (ii) extrapolation of the past employment trends into the future (Harbison and Myers, 1974); (iii) inter-country comparisons (OECD, 1962); (iv) on the basis of Development Plan and Projects, and (v) on the basis of Productivity of labour and future output (Parnes, 1964).

Educational planning is a comprehensive planning. A number of studies, based on the manpower approach, adopt an input-output econometric model of educational system. This method is based on the assumption of the existence of a homogeneous production function in the economy and also the operation of both constant returns to scale and diminishing returns. The pioneering works in this field are : Correa-Tinbergen-Bos (1964), Layard and Saigal (1966), Stone (1966) and the model for India including Burgess, Layard and Pant (1968), Ramanujan (1969), Shri Prakash (1971, 1977) Prakash and Radhakrishnan (1973) and Lawma (1990).

Correa-Tinbergen-Bos (1964) examined the balanced growth path of education. This model determines the equilibrium growth of manpower at different levels of education such as primary, secondary and university levels. This model views educational planning from the point of view of demand and recognises at the same time the self-contained nature of the education sector. Layard and Saigal (1966), in a study of international manpower comparisons, attempted to depict the single manpower growth path for all countries. The conclusion of the study is that there is a tendency for the educational levels of occupations to rise with output per worker. Stone (1965) developed an inter-temporal, multi-sectoral input-output model of education. He defined educational system as a chain of inter-dependent processes and his model is analogous to open dynamic input-output model where the number of students enrolled in a given year are shown as functions of future vectors of graduate leavers. He designed an



input-output accounting matrix with the number of students as inputs and graduates leaving the education system as output. He also made allowances for wastages, drop-outs and technological changes.

Burgess, Layard and Pant (1968) defined the structure of employment in India by levels of education and industry on the basis of 1961 Census. They also estimated the manpower requirements of various categories of higher level by making several important assumptions about the sectoral growth rates. Ramanujan (1969) estimated the occupation-educated manpower requirements of India for 1970-71, 1975-76 and 1980-81 using the input-output data for the Indian Economy. Shri Prakash (1977) developed an input-output model for educational planning in India. He dealt with the methods of estimating the manpower requirements based on a given rate and a pattern of future economic growth and thus determining the supply of manpower with different levels and types of education. In another study, Prakash (1971) projected the occupation - educational structure of manpower for two public sector industries in India.

Again, Prakash and Radhakrishnan (1973) attempted to estimate the private demand for education and the study found that the demand for education is a function of a number of factors such as, socio-economic, cultural, demographic and educational factors. The influence of parents' income and occupation in demand for education is much higher at the higher level and type of education. Lawma (1990) analysed the problem of upgrading and downgrading of educational qualifications

systematically at the conceptual, methodological and empirical levels. The study attempts to measure the nature, degree and direction of divergencies between the desired and the actual levels and patterns of educational qualifications in the different sectors of the economy and the occupations within them. The study also established that the labour market even in an underdeveloped and isolated region like North East India is neither local nor segmented in nature, as a substantial proportion of manpower is imported from the rest of the country in order to meet shortages in local supply. He has also succeeded in establishing the patterns of inter and intra-regional migration by the levels and types of education, occupation and various sectors of the economy which highlight the role of migration as a balancing factor in the regional labour markets. Other important findings of the study are : (a) Formal qualifications are more important for job entry in the general education based jobs; (b) Practical training and work experience are more important for job entry in the general education based jobs; (c) In professional/technical based jobs, experience is more important for vertical mobility; (d) The possibilities of upgradation of qualifications are more in general education based jobs.

1.3 The Problem : Nature, Scope and Coverage :

Recognition of economic functions of education and its role in development has led to the allocation of a large proportion of public fund to the development of education, especially in developing countries. In India, like many other

developing countries, national commitment was made in the field of education after Independence. The educational system from primary to university education was greatly expanded because of consistent effort made under Five Year Plans. Access to educational facilities is now opened to a vast majority of the people. Presently, India had the second largest elementary education system in the world with 149.9 million children in the age group of 6-14 years enrolled which is about 82% in terms of coverage. Also, an estimated 94% of the rural population now has access to primary schooling facilities within a walking distance of 1 km.; and 84% of the population is served by middle or upper primary schools within a distance of 3 kms. The growth of recognised educational institutions since 1950-1951 is shown in Table 1.1

Table 1.1 Growth of Recognised Educational Institutions Since 1950-1951

Educational Institutions		1950-51	1960-61	1970-71	1980-81	1990-91	1991-92	1992-93	1993-94
Primary	'000	210	330	408	495	561	565	572	573
Middle	'000	13.6	49.7	90.6	119	151	152	156	115
High/ Higher Sec.	'000	7.3	17.3	37.1	51.6	79.8	81.2	84.1	88
Colleges									
General Education	nos.	370	967	2,285	3,421	4,862	5,058	5,334	5,639
Engineering & Technology*	nos.	208	852	992	1317	886	N.A.	989	1,125
Medical (Including Dental)	nos.	28	60	98	111	128	146	146	-
Universities	nos.	27	45	82	110	184@	196@	207@	213@

Note : * Colleges for Professional Education, @ includes deemed Universities and Institutions of national importance.

Source : INDIA Fact Sheets, 1995, Ministry of Information and Broadcasting, Government of India, New Delhi, 1995.

The Higher Education sector, vital for the national economy, has also witnessed a steady growth since Independence in 1947. As on 1993-94, there were 213 central and state universities including Deemed universities and Institution of national importance. The number of colleges for general education increased from 370 in 1950-51 to 5,639 in 1993-94. Table 1.1 indicates that in the post-Independence period, both elementary and Higher education have increased tremendously although the latter increased much more rapidly than the former. Whereas school education have risen 2.36 times during the period between 1950-51 and 1993-94, the number of higher educational institutions have grown by 14.23 times during the same period. Enrolment in higher education increased from 2 lakh to 48 lakh students i.e. 24 times over the same period (PIB, Government of India, 1996).

The spectacular growth of education in the country absorbs a large amount of the national investible resources resulting in a serious resource crunch due to its limited share in public budget and a competition for resources with other sectors of the economy. In India, the national educational expenditure has been increasing rapidly and steadily since Independence. It increased from Rs.114 crores in 1950-51 to Rs.25,502 crores in 1992-93, measured in current prices. In terms of proportion of Gross Domestic Product, it increased from 1.27 per cent to 4.06 per cent between 1950 and 1992. This trend is shown in Table 1.2. While expenditure on education increased considerably, the share

of educational expenditure to total budget has been declining gradually over the years. Table 1.3 shows that the Indian states and union territories taken together devoted 19.8 per cent of total budget to education in 1967-68. This proportion decreased to 17.1 per cent in 1992-93. The percentage of educational expenditure to total budget at the Centre decreased from 1.6 to 1.3 per cent during the same period.

On the basis of budgetary trends observed in India, one can predict that resources available for education in future may be further limited in amount. In fact, public authority will find it difficult to earmark more of its revenue resources for the development of education, particularly higher education. On the other hand, factors like increase in population, urbanisation, improvement in economic standard, social and cultural consciousness has further increased the demand for education. In order to meet this increasing demand for education with the available limited resources, planners and policy makers will have to plan from now onwards. For this purpose, they have to evolve methods for lowering the costs of education for a given level of output or increase the productivity of given inputs. Unit cost analysis is the first step in achieving these objectives.

TABLE 1.2 Educational Expenditure as Percentage of GDP
(Current Prices)

Year	GDP (Rs. Crores)	Total Educational Expenditure (Rs. Crores)	All India
			Educational Expenditure as Percentage of GDP
1950-51	8,979	114	1.27
1960-61	15,254	344	2.26
1970-71	39,708	1,118	2.82
1975-76	71,201	2,105	2.96
1980-81	122,427	3,641	2.97
1985-86	233,799	7,457	3.19
1986-87	260,030	8,450	3.25
1987-88	294,851	10,430	3.54
1988-89	352,703	12,409	3.52
1989-90	408,661	15,292	3.74
1990-91	475,604	20,761	4.37
1991-92	551,552	23,248(RE)	4.21
1992-93	627,913	25,502(BE)	4.06

RE:Revised Estimate BE:Budget Estimate GDP:Gross Domestic Product

Sources: (i) Central Statistical Organisation, National Accounts
Statistics - 1994

(ii) Ministry of Human Resource Development.

TABLE 1.3 Percentage of Educational Expenditure on Education Department to Total Budget

Year	State/Union Territory	Centre	All India
			Total
1967-68	19.8	1.6	11.9
1970-71	21.4	2.6	13.9
1975-76	22.7	2.1	13.6
1980-81	20.6	1.6	11.6
1981-82	20.0	1.5	11.3
1982-83	21.3	1.3	10.8
1983-84	20.8	1.5	11.4
1984-85	20.5	1.6	11.2
1990-91	17.9	1.5	8.9
1991-92(RE)	17.0	1.5	8.8
1992-93(BE)	17.1	1.3	8.7

RE : Revised Estimate BE:Budget Estimate

Sources: Ministry of Human Resource Development:

- (i) A Handbook of Educational and Allied Statistics
- (ii) Analysis of Budgeted Expenditure on Education.

The estimates of unit cost of education have attracted the attention of researchers and policy makers in India and abroad. Quite a few studies on cost of education at the national, state and micro-level have been done in India by individual researchers and commissions/committees. To the best of our knowledge, no systematic study has ever been done on this topic in the North Eastern Region of India. The present study is a modest attempt to analyse and estimate unit cost of higher education in Mizoram. The scope and coverage of the study may be as follows :

- (i) The study is confined to the cost analysis of college education which includes Pre-University courses and Degree courses. The study does not deal with post-graduate education at the university and other post-matric education of technical and professional education like Polytechnic and Teachers' training institutes;
- (ii) The estimates of institutional cost excludes the expenditure on Direction and Administration incurred at the Secretariat and Directorate level;
- (iii) Expenditures on scholarship, stipends and other financial assistance received by students from various sources are treated as transfer payments and hence excluded from the calculation of unit cost of higher education;
- (iv) Opportunity costs are not estimated. The total cost of college education, therefore consists of direct private costs and direct institutional costs of education, net of transfer payments.

1.4 Objectives of the Study :

Mizoram has been making rapid progress in the field of general education since Independence. The Government as well as individual household devote a good deal of resource towards the development of education in the State. However, the experience of Mizoram shows that rational calculations have not played at any stage a decisive role in the allocation of public funds for education and the public authority has not so far looked into the problem as to whether resources invested in education sector are efficiently utilized. Presently, the state government is facing serious resource crunch and the government finds it difficult to divert more resources for the education sector. Therefore, the development and further qualitative improvements of the existing system have become almost impossible. A study of unit cost of higher education would be of immense help in assessing the efficiency of resource utilisation. In this study, attempts have been made to estimate the institutional cost, both recurring and non-recurring, and private costs of education at the college level. More specifically, the study has the following objectives:

1. To analyse the pattern and growth trend of public expenditure on education in Mizoram between 1972-73 and 1993-94;
2. To analyse the various sources of educational finance with special reference to college education - their organisation, control and administration;
3. To estimate unit cost of college education and to analyse the pattern and trend of institutional unit cost;

4. To study the relationship between unit cost and enrolment size; and
5. To estimate direct private costs of college education and to assess the impact of socio-economic status of the parents on the educational expenditure pattern of children.

1.5 Importance of the Study :

Estimation of unit cost has many practical significance in the field of educational planning. It is an important technique by which education planners and policy-makers can evaluate the internal and external efficiency of an educational institution in terms of productivity and allocation of resources. The International Institute for Educational Planning, in their research project in 1968 examined the various ways of using cost analysis in both developed and developing countries and the study concluded that cost analysis serves a variety of purposes in educational planning (IIEP, 1972).

Fielden and Pearson also emphasised the value of cost analysis in the following words : "In the current economic climate, resources for education and training are becoming scarcer. There will be increasing pressure from policy-makers for cost reduction and increased "efficiency" and there is likely to be more resistance to providing extra resources for educational projects. Educational staff will therefore need even more than before, to make the best use of the resources available, to examine carefully the full resource implications of any proposed

new schemes, and to support their arguments with quantitative data wherever possible. Cost analysis can be a powerful aid to achieve these aims." (Fielden and Pearson, 1978,) Unit cost analysis serves the following purposes :

- (i) Estimating and working out resources required for educational sector and for various sub-sectors of education;
- (ii) To improve the efficiency of resources invested in education;
- (iii) To evaluate if resources allocated to education are optimally used and within educational sector whether resources are optimally allocated between different sub-system of education;
- (iv) To assess the cost-effectiveness and cost-benefit ratio of the educational system as a whole and of the different levels of the system.

1.6 Conceptual Framework :

Educational institutions may be considered as the firms of education industry. Schools, colleges and universities, therefore, constitute the firms that undertake the production of good or service called 'education'. The education industry as a whole consists of educational institutions, physical equipments, students, teachers and management. As in other industrial process, it is interesting to study the structure of inputs and

outputs of the educational system in order to make rational decisions with respect to resource allocation in the field of education.

Educational institutions, like other producing units, transform inputs into outputs, incurring costs in the process. The identification of the unit of output in education is a typical problem. Enrolments are generally taken as the output of education in order to estimate unit costs of education. Students enter into educational institutions as the raw-material to be processed, and are transmitted from lower to higher stages as goods in process. The output of education may be said to be the "knowledge added" or "educational value added" which consist of the knowledge absorbed and capabilities developed by the students at each stage of their education. Total enrolment is taken as gross output and the number of passed-out or graduates can be regarded as Net Output (Prakash, 1996).

The inputs of the educational plant consist of both the human and physical resources. These factor inputs comprise of the services of teachers and other non-teaching staff as human inputs, inputs of students' time and services as raw materials, services of the means of transportation and communications and services of such material goods as books, stationery, uniforms, buildings, laboratory and other equipment as physical inputs of the educational production.

Evaluation of the cost of factor services is the basis of educational cost analysis. The factor cost of education is the sum total of expenditure paid for different factor inputs used in the educational production function such as teachers, auxilliary staff, building, equipments, furniture, books and stationery. The services of these factor inputs are purchased from different market. The size of the markets of individual input may be spread from purely local to international and their structures may be approximated from pure competition to near perfect monopoly. However, most of the markets are highly specialised oligopolistic markets with highly differentiated products. The education institutions which buy the factor services has to pay fixed prices set by the public authority in case of academic and non-academic staff while the services of other physical inputs at the prices prevailing in the market. In centrally planned economies, prices are fixed by government while prices are the result of the interplay of the forces of demand and supply in market economies (Prakash, 1996). Analysis and estimation of factor cost of education involves the classification of these inputs into different components and assess their level of utilisation. This type of analysis is useful for rationalizing investment strategies in the education sector. In the next section, the various components of factor cost of education are analysed.

1.7 Taxonomy of Cost of Education :

The cost of education consists of three major components : These are : (i) institutional cost, (ii) private or student cost, and (iii) opportunity cost. Institutional cost represents the cost incurred by the government or educational institution or both in operating and maintaining the institution to provide facilities of education. Private cost of education may be defined as that part of investment in education which is made either by the student or his/her parents or both. Opportunity cost is the earning forgone by a student on account of pursuing a given level of education or the benefits forgone that would have been available to the society in the absence of educational programme (Woodhall, 1987). However, the estimation of opportunity cost is outside the scope of the present study. Thus, the present study is confined to the analysis of direct institutional and private cost of higher education in Mizoram.

Institutional cost is usually classified into recurring and non-recurring cost or current and capital cost. Sometimes, it may also be classified into variable and fixed cost of education. It should however be noted that except for the terminology, the three classification represent more or less the same meaning. Thus, the fixed cost or capital cost or non-recurring cost means the purchase of durable assets which are expected to yield benefits over a longer period while recurring or current or variable cost includes all expenditure on consumable goods and services which bring immediate or short term benefits and have to be regularly renewed (Woodhall, 1987).

The major items of recurring cost are :

- (i) **Teaching Costs** : Teachers are the basic input of the educational system. The teaching cost means the cost incurred on the salary and allowances of teachers employed in the college. Although the Principals of the college do not take regular classes, they have been considered as members of the teaching staff.

- (ii) **Non-Teaching Staff Cost** : Non-teaching staff constitutes an auxiliary input of educational production system. Wages and salaries of non-teaching staff are treated as an item of recurring expenditure or cost. Non-teaching staff includes staff engaged in the general administration of the college, finance/account staff, laboratories and library staff.

- (iii) **Common Services and Other Recurring Costs** : The cost under these items include expenditure on consumable items for laboratories, current expenditure on maintenance and repairs of buildings, equipments and furniture, rent, telephone bills, electric and water charges, stationery and postal charges.

- (iv) **Student Service Cost** : This cost includes the expenditure incurred on games and sports and other socio-cultural activities organised by the students themselves.

Recurring cost may be divided into two parts- divisible and non-divisible. Some of the components of recurring costs are divisible in the sense that these costs are incurred in providing services to a group or part of the student body e.g. salaries and allowances of teachers and current expenditure on consumable stores for laboratory. Non-divisible costs comprise those items of expenditure which are incurred for providing common services to all students in the institutions and cannot be assigned to any category of students or course. These items include salaries of non-teaching staff, common services and other recurring costs excluding current laboratory expenses and costs of student activities.

The items of non-recurring or capital costs include the expenditure on buildings, land, library books, furniture, office and laboratory equipments and other items of permanent nature. The following non-recurring costs are estimated in the analysis.

(i) **Building** : Generally investment on building happens to be the largest component of non-recurring or capital cost. There are two types of expenditure on building: first, annual expenditure on the routine maintenance and repairs of the existing buildings and this portion is classified as recurring expenditure, and secondly, expenditure on building construction, addition and major alteration are considered as non-recurring cost.

(ii) Library books : Expenditure on books and Journal are treated as investment in capital assets. They are available for use by students and teachers for several years. But expenditure on binding, insecticides and other consumables are regarded as recurring cost.

(iii) Furniture and Equipment : These items are an essential input of educational production. They have their own life span and their services could be utilised during over its life time. Therefore, any expenditure on typewriters, duplicating machines, laboratory equipments, benches, tables, desks, and other durable assets are treated as non-recurring cost while annual maintenance and repairs are a part of recurring cost.

Private cost of education is broadly divided into direct cost and indirect cost. Direct private cost is defined as the cost directly incurred by a household for the education of students. Direct cost has two components: academic cost and non-academic cost. Academic cost indicates expenditure directly related with the education of the student, whereas the costs which are related with their supports and maintenance educational instruction are referred to as non-academic cost. The major components of academic cost are fees given to the college, cost of book and stationery and other instructional costs. Non-academic costs include expenditure on food, transport and communication and personal maintenance.

The items under Academic and non-academic cost may be explained as under:

A. Academic Costs :

(i) **Fees** : Fees consist of tuition fee and other fees directly collected by the colleges.

(ii) **Books and Stationery** : These items include the expenditure incurred by the students and their families on textbooks, magazines, daily newspapers, exercise books, papers, pen, tools and instruments.

B. Non-Academic Costs :

(iii) **Food** : The expenditure on food constitutes an important component of private cost of education. In this respect, students may be divided into hostellers and day-scholars. The day scholars are of two types: those who stay with their parents and those who make their own arrangement outside hostel. The expenditure on food & lodging of these two categories will not be same. While the expenditure of the hostellers can easily be estimated, it is not easy for those of day-scholars. The expenditure on food and lodging may vary considerably according to individual tastes and habits and more importantly, the economic status of the students or his parents.

(iv) **Transport and Communication** : These items include the amount of expenditure incurred by the students for their journey to and from the place of study, daily transport for going to the colleges, postages and other related items.

(v) **Personal Maintenance** : Expenditure on personal maintenance incurred by the student includes items on clothing, footwear, medicines and medical check-up and other consumables like soap, toothpastes and toiletries.

Indirect cost or opportunity cost of education is generally assessed in terms of the foregone earnings. It consists of loss of income that a student could have earned, had he gone for employment instead of pursuing education. There is some controversy relating to the inclusions of opportunity cost of student in the total cost of education. Blaug (1970) argued that earnings foregone should be included in any estimate of the true cost of education but Vaizey (1962) rejected this view. However quite a few economists have attempted to measure the opportunity cost in their study on cost-benefit analysis in education and for assessing the total resource cost of education. (Shultz, 1961, Blaug, et al. 1969, Becker, 1975, OECD, 1977, Tilak 1987).

The following chart illustrates the taxonomy of cost of education:

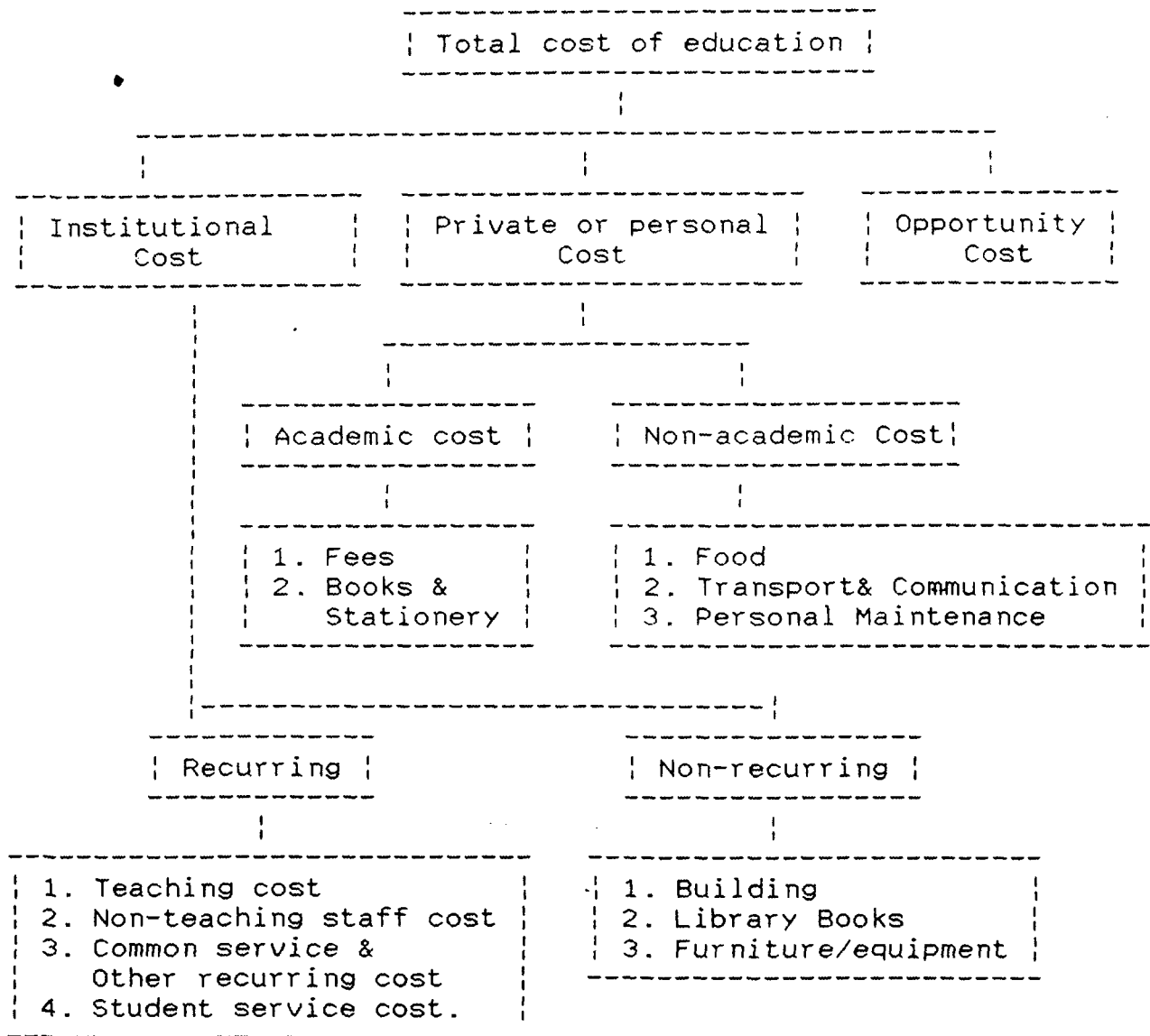


Fig. 1.1 Taxonomy of Cost of Education.

1.8 Methodology and Sources of Data :

Higher education in this study implied college education which includes Pre-University and Degree courses in general education. The analysis has been based on the data collected through surveys conducted in the colleges included in the study. The information relating to the institutional costs were obtained from these colleges. Data with regard to the cost of education directly borne by the students and their parents were collected from sample survey among the students. Data and information were also collected from several published and unpublished records of the government departments and other secondary sources.

The growth of institutional cost was examined for the period between 1983-84 and 1993-94. The pattern and structure of institutional unit cost per student has also been estimated separately by type of management and by the number of courses serviced in the college, i.e. course-wise. The estimate of private cost was related to the academic year 1993-94.

The analysis of data has been carried out by using simple statistics like percentage, Means, Standard Deviation (SD), Coefficient of Variation (CV) and regression analysis. The pattern of institutional cost was evaluated by the analysis of the proportionate/percentage shares of expenditure on individual items in the total costs. The various components of private cost were estimated using the Mean, Standard Deviation, Maxima and Minima. For showing the variation and variability of private cost of education the coefficient of variation which is the ratio of Standard Deviation with Mean has been adopted.

The ordinary least squares (OLS) regression technique has been used to estimate the relationship between enrolment size and institutional unit cost per student and for analysing and fitting of the trend curve of the time series data on public expenditure on education and Unit Costs of education. The mathematical model for the regression equation is

$$Y = a + bX \quad (1.1)$$

where Y and X are the dependent and independent variable, 'a' is Y-intercept and 'b' is the regression coefficient which shows the rate of change of dependent variable for unit change in the independent variable. The strength of the relationship between the dependent variable and independent variables have been measured by the coefficient of determination, denoted by r^2 which shows how well the overall equation explains changes in the dependent variables and the t-statistic which determines the significance of the relationship between the dependent variable and independent variables.

Traditional economic theory postulates that average cost curve is U-shaped which implies that average or unit cost declines with an increase in output till the optimum size is reached. The relationship between unit cost of education and enrolments which are generally regarded as the proxy of output of education, has also been assumed to have a typical U-shaped curve indicating that the unit cost falls with an increase in enrolments till the optimum size is reached, and later, it increases as enrolments expand. The U-shaped cost curve may be

approximated mathematically by the quadratic function or second degree polynomial function:

$$Y = a + bX + cX^2 \quad (1.2)$$

where Y is the unit cost per student, X is enrolment and a, b, c are the constant for the function. For unit cost Y to be minimum, the following conditions will have to be satisfied:

$$dY/dX = b + 2cX = 0 \quad (1.3)$$

$$\text{and } d^2Y/dX^2 > 0. \quad (1.4)$$

Convexity of the curve warrants that $b < 0$ and $c > 0$ hold together. Solution of equation (1.3) will furnish an estimate of the optimum enrolment size, say X^* :

$$X^* = -b/2c \quad (1.5)$$

Since b is negative, the solution value of equation 1.2 at $X^* = X$ gives the minimum cost that will correspond to the optimum enrolment size (Prakash, 1996(a)).

The quadratic function had been fitted to the cost-enrolment data of different colleges to determine minimum cost and optimum size corresponding to it.

1.8.1 Calculation of Institutional cost:

The institutional cost of education is the sum of the total expenditure on recurring and non-recurring items:

$$E = RE + NRE \quad (1.6)$$

where E is the total institutional cost or expenditure, RE is Recurring cost and NRE is Non-recurring cost. Dividing 1.6 by the number of students enrolled (N) gives the overall institutional unit cost (UC) on the left-hand side of 1.6 and the unit cost on recurring and non-recurring items on the right-hand side:

$$E/N = UC = RE/N + NRE/N \quad (1.7)$$

Recurring cost or expenditure can further be classified into the salary and allowances of teaching (TC) and non-teaching staff (NTS), spending on common activities and other recurring items (CR) and student activities on games and sports and socio-cultural functions (SS). The link between overall and the various components of recurring cost may be written with the following identity:

$$RE = TC + NTS + CR + SS \quad (1.8)$$

Dividing 1.8 by the number of students enrolled (N) furnishes unit recurring cost (UCRE) on the left-hand side of 1.8 and the unit cost of each contributory factors on the right-hand side:

$$RE/N = UCRE = TC/N + NTS/N + CS/N + SS/N \quad (1.9)$$

The sum of teachers' salaries and allowances may be expressed as the product of the number of teachers (NT) and their average salary (AS). Thus, 1.4 can be written as:

$$UCRE = (NT.AS)/N + nts + cs + ss \quad (1.9^*)$$

where the lower case letters indicate unit rather total cost of factor inputs of recurring nature.

Similarly, non-recurring cost includes the expenditure on buildings construction (BE), library books (LB) and furniture/equipments (Q). The annual unit cost on non-recurring items (UCNRE) is obtained when the various components of Non-recurring cost are divided by number of students enrolled (N):

$$NRE/N = UCNRE = BE/N + LB/N + Q/N \quad (1.10)$$

Educational institution collects tuition fee and other fees (F) from the students. These fees income are deducted to get the actual or net cost borne by the institutions. Therefore, the net institutional cost (NUC) per student is equal to the difference between the total institutional cost (E) and fee income (F) and divided by the number of students enrolled (N)

$$NUC = E/N - F/N \quad (1.11)$$

1.8.2 Calculation of Direct Private Cost :

The cost of education directly borne by the students and their families has been classified into two components: (i) Academic costs which were directly related with education such as expenditure on fees, books and stationery, and (ii) Non-academic costs which were expenditure related with their support and maintenance such as food, transport and personal maintenance. Students received scholarships, stipends and other grants and these amounts are deducted to arrive at the net private cost of education.

The cost of fees incurred by the students were directly collected from the Cash book of the colleges while the expenditures on other items such as books, stationery, transport and personal maintenance were calculated from the survey data among the students. The cost of food has included the expenditure incurred by the students on their mess bills in the hostel and at home including daily tiffin expenses in the colleges. The rent paid by the students to the hostel and accomodation charges in rented houses were also included in the cost of food. The cost of food for day scholars who live with their parents was imputed on the basis of the size of the family; similarly, the imputed rent was also estimated from the average rent paid by the students who arranged their own accomodation outside hostel.

1.8.3 Selection of the Sample :

The sample design of the study involved two stages: (i) the selection of colleges, and (ii) the selection of the students. At the time of collection of data in 1993-94, there were 29 colleges in Mizoram and 13 of them were general degree colleges affiliated to North Eastern Hill University (NEHU). The remaining 16 colleges were either recognised or affiliated only upto Pre-University level. These degree colleges were selected to represent the sample of the analysis. However, data could be collected only from 10 colleges. Hence, the study of unit cost of higher education covered ten general degree colleges in Mizoram. They are given in Table 1.4.

Table 1.4 indicates that the distribution of the sample colleges consisted of one University colleges, five State Government colleges and four private colleges which were semi-government institutions and received grants-in-aid for maintenance and development purposes. There were four colleges offering Arts course only. Three colleges were having both Arts and Science programme of studies, while only one college offered Arts and Commerce course. And only two colleges had Arts, Science and Commerce. The total enrolment of all colleges taken together was 16057 students in 1993-94. Thus, the sample in the study covered 53.66 per cent of the total enrolment in colleges in Mizoram.

The distribution of enrolment in the sample colleges according to type of management as given in Table 4.1 reveals that 15.71 per cent were enrolled in the University college while the total enrolment in the state Government colleges was 4450 students which was 51.65 per cent of total enrolment in the selected colleges. The sample colleges under private management had enrolled 2812 students, comprising 32.64 per cent of the total enrolment in sample colleges.

Table 1.4 Degree Colleges included in the Study

Sl.No	Name of the College	Year of Establishment	Enrolment 1993	No. of Teachers	Art/Sci/ Commers	Arts/ Commece	Arts/ Science
	A. University Colleges						
1	Pachhunga University College	1985	1354	75	1	0	0
	B. State Government Colleges						
2	Aizawl College ¹	1975	1749	46	1	0	0
3	Zirtiri Women's College ²	1980	419	21	0	0	1
4	Champhai College	1971	714	25	0	0	0
5	Lunglei College	1963	740	32	0	0	1
6	Saiha College ³	1978	828	28	0	0	1
	C. Private Colleges (under deficit grant-in-aid system)						
7	Hrangbana College ⁴	1980	1355	40	0	1	0
8	Hnahthial College	1979	222	15	0	0	0
9	J.B. College	1983	688	9	0	0	0
10	Lawngtlai College	1980	547	13	0	0	0
	TOTAL		8616	304	2	1	3
Note:	1. Science & Commerce upto Pre-University						
	2. Home Science only						
	3. Science upto Pre University level						
	4. Enrolment included only Day shift students						

In the sample survey conducted among the students, stratified random sampling technique was adopted. Students were stratified according to their respective classes and the student sample was drawn randomly from each class. Five per cent of the students from each class were selected to represent the population of the sample and they were administered the questionnaire specifically prepared for them. However, the actual sample turned out to four per cent of the student enrolled in each class after the exclusion of incomplete and no response of the sample.

The total number of students in the sample consisted of 351 students who were drawn from the selected colleges. The distribution of the student sample population according to the classwise is given below in Table 1.5

Table 1.5 Distribution of sample population of the students.

Classes	Number of students in the sample
1. Pre University (Arts)	155
2. Pre-University (Science)	37
3. Pre-University (Commerce)	27
4. B.A	100
5. B.Sc	19
6. B. Com	13
Total	351

1.8.4 Collection of Data :

There is no secondary data available to estimate either institutional cost or private cost directly borne by the students except tuition fee and other fees paid to the college. Hence, most of the required information and data on institutional cost as well as private cost of college education were collected from primary sources. For this purpose, questionnaire were developed and administered to the sample population. All the colleges included in the study were visited and the relevant information and data relating to the institutions were collected with the help of the principals and other office staff. Students were randomly selected from each class and they were guided and helped in filling up the questionnaire. The data collected in this way formed the basis of estimation of unit cost of higher education in Mizoram.

Three types of questionnaires were constructed and used for data collection. These are:

(1) **State level questionnaire** : This questionnaire was designed to collect data and information from primary sources like the Directorate of Higher & Technical Education and Directorate of School Education and other concerned offices. State level data on enrolment, financial expenditure on recurring and non-recurring items were collected through this questionnaire.

The questionnaire is appended in Appendix-A.

(2) Institutional level questionnaire : This questionnaire was developed to collect information on institutional cost and other related materials needed for the estimation of unit cost. The questionnaire has collected informations like number of teaching and non-teaching staff, enrolments, university examination results and financial expenditure on recurring and non-recurring items like salaries and allowances of teaching and non-teaching staff, games and sports, office expenditure, buildings, library books, other durable goods like furniture and equipment and finally fund received from various sources like government, fees and other donations from individuals. The questionnaire is given in Appendix-B.

(3) Questionnaire for Students : This questionnaire was used for collecting information about different components of private costs and the socio-economic status of the parents of the students. It has collected data on the following aspects:

(1) student background- family size, income and occupation of the parents, (2) monthly average expenditure on food and rent paid to the hostel and other accomodations, (3) annual average expenditure on transport and communication (4) expenditure on textbooks and stationery (5) annual expenditure on clothing and other personal expenditure on toilet items and (6) expenditure on private tuition. Those items given on a monthly basis were adjusted per year at the tabulation level and the overall expenditure is aggregated and expressed as cost per student per year. The questionnaire is appended in Appendix-C.

(4) Other Sources of Data :

In addition to the data and information collected with the help of questionnaires, data were also collected from published and unpublished sources of government departments like Directorate of Economics and Statistics, Planning and Programme Implementation Department, Budget Documents from the Government of Mizoram, Ministry of Education (Government of India) and North Eastern Council (Shillong).

1.8.5 Cost of Education at Current and Constant Prices :

Cost of education may be expressed at current (market) or constant prices. Cost of education at constant prices take care of increases in prices of goods and services and thus represent the real cost of education. When costs of education are computed over a period of time, it is necessary to convert current prices into constant prices because current prices may at times be deceptive especially when an economy is experiencing price inflation. The best solution to this kind of problem is to construct educational price index, based on the prices of goods and services used in educational process. But unfortunately no price information or index is available in the State. Thus in the absence of any appropriate price index at the state level, the Net National Product deflator is used to convert current prices into constant prices taking 1980-81 as the base year.

1.9 Scheme of Chapters :

The study is divided into seven chapters. Chapter 1 deals with introduction, objectives, methodology and sources of data. Chapter 2 gives a broad outline of the socio-economic profile of the State. Chapter 3 contains a brief review of the relevant literature on the subject. Chapter 4 analyses the profile of educational development and growth of educational expenditure in Mizoram. Chapter 5 gives the analysis of institutional cost of higher education. Chapter 6 deals with the estimation of private cost of higher education in Mizoram; and lastly, Chapter 7 gives the major findings and conclusions.

REFERENCES

- Abramovitz, M, 'Resource and Output Trends in the United States since 1890, in *American Economic Review*, papers and proceedings, May, 1956.
- Anderson, C.A. and Bowman, M.J., 'Concerning the role of Education in Development.' In C. Greetz (ed) *Old Societies and New States : The Quest for Modernity in Asia and Africa*, Collier Macmillan, London, 1963.
- Ansari, M.M., "Education and Economic Development," Association of Indian Universities, New Delhi, 1987
- Ansari, M.M., "Educational Expenditure and Economic Growth" in C.S Nagpal, and A.C. Mittal, (eds) *Economics of Education*, Anmol Publications Pvt. Ltd, New Delhi 1993.
- Bannock, G., Baxter, R.E. and Rees, R., *The Penguin Dictionary of Economics* Penquin Books Ltd, Middlesex, 1981.
- Becker, G.S. "Investment in Human Capital: A Theoretical Analysis" *Journal of Political Economy*, Vol. 70. 1962
- Becker, G.S., *Human Capital (A Theoretical and Empirical Analysis, with special reference to Education)* NBER, New York, Second Edition, 1975.
- Blaug, Mark., *An Introduction to the Economics of Education* Penquin Books Ltd. 1970
- Blaug, Mark, Layard P.R.G. and Woodhall, M., *Causes of Graduate Unemployment in India* The Penquin Press, London, 1969.
- Bowen, W.G., "Assessing the Economic Contribution of Education" in M. Blaug (ed) *Economics of Education-1* Penquin Books Ltd. Harmondsworth, Middlesex, 1968.
- Bowman, M.J., "The Human Investment Revolution in Economic Thought" *Sociology of Education*, Vol. 39, 1966.
- Burgess, T., Layard, R. and Pant, P., *Manpower and Educational Development in India 1961-1986*. Oliver & Boyd, London, Edinburg, 1968
- Chaudhari, D.P. "Education of Farmers and Productivity" in H.N. Pandit (ed) *Measurement of Cost Productivity and Efficiency of Education*, NCERT, New Delhi, 1969.
- Chaudhari, D.P. *Education, innovations and agriculture Development*, Croom Helm, London, 1979.

- Chaudhari, D.P., and Rao, P., 'Private and social returns to higher education: A case study of Delhi graduates' in *Economic and Political Weekly*, 5/14 (4 April) 1970.
- Central Statistical Organisation, *National Accounts Statistics - 1994*
- Correa, H., *The Economics of Human Resources.*, North Holland Publishing Company, Amsterdam, 2nd Printing, 1967.
- Correa, H., and Tinbergen, J., "Quantitative Adaptation of Education to Accelerated Growth" *Kyklos*, Vol. 15 No.4, 1962.
- Denison, E.F., *The Sources of Economic Growth in the United States and the Alternatives before Us*, Supplementary paper No. 13., Committee for Economical Development New York, 1962.
- Dholakia, B.H. *The Sources of Economic Growth in India*, Good Companions, Baroda, 1974.
- Fielden, J., and Pearson, P.K. *Costing Educational Practice*, Council for Educational Technology, London 1978.
- Friedman, M. and Kuznets, S. *Incomes from Independent Professional Practice*; National Bureau of Economic Research, New York.
- Government of India, *India Facts Sheets*, Ministry of Information & Broadcasting, New Delhi, 1995.
- Government of India, *A Handbook of Educational and Allied Statistics*, Ministry of Human Resource Development, New Delhi.
- Government of India, *Analysis of Budgeted Expenditure on Education*, Ministry of Human Resource Development, New Delhi.
- Harbison, Frederic H., *Human Resources as the Wealth of Nations* Oxford University Press, New York, 1973
- Harbison, F.H. and Myers, C., (1964) *Education, Manpower and Economic Growth*, McGraw-Hill Book Company, 1964.
- Houthakar, H.S. "Education and Income" *Review of Economics and Statistics*, Vol. 41, February, 1959..
- Hansen, W.L. "Rates of Return to Investment in Schooling in the United States" in M. Blaug (ed) *Economics of Education-1* Penquin Books Ltd, Harmondsworth, Middlesex, 1968

- Hicks, N.L., "Education and Economic Growth" in George Psacharopoulos (ed), **Economics of Education, Research and Study**, Pergamon Press, Oxford, 1987.
- Hussain, I.Z.; "Returns to Education in India: An Estimate" in B. Singh (ed), **Education as Investment**, Meenakshi Prakashan, Meerut 1967.
- International Institute for Educational Planning (IIEP) **Educational Cost Analysis in Action: Case Studies for Planners**, Vol. I+II UNESCO/IIEP, Paris, 1972.
- Kendrick, J.W. : **Productivity Trends in the United States**, Princeton University Press, Princeton, New Jersey, 1961.
- Kothari, V.N. : "Returns to Education in India" in B. Singh (ed) **Education as Investment**, Meenakshi Prakashan, Meerut 1967.
- Lawma, T: **Market Imperfections and Manpower Planning**, Commonwealth Publishers, New Delhi, 1990.
- Layard, P.R.G., and Saigal, J.C., "Educational Occupational Characteristics of Manpower: An International Comparison" in **British Journal of Industrial Relations**, 1966.
- Locheed, M.E. : "Farmers' Education and Economic Performance" in George Psacharopoulos (ed) **Economics of Education Research and Study**, Pergamon Press, Oxford, 1987.
- Marshall, Alfred (1890) **Principles of Economics**, Macmillan 8th Edition, 1961.
- McClelland, D.C.: "Does Education Accelerated Economic Growth" in **Economic Development and Cultural Change**, April, 1996.
- Mayer, Gerald, M.: "Investment in Human Capital-Note" in Gerald M. Meyer, (ed) **Leading Issues in Economic Development** Fifth Edition, Oxford University Press, Delhi, 1990.
- Miller, H.P., "Annual and Lifetime Income in Relation to Education" **American Economic Review**, December, 1960.
- Mincer, Jacob., "Investment in Human Capital and Per Income Distribution" in **Journal of Political Economy.**, Vol. 66 No. 4., August, 1958.
- Mukerji, K. and Krishna Rao, A.; : "Education and Economic Development in India between 1951 and 1961: An Empirical Investigation," in B. Singh (ed) *op.cit.*

- Nall Gounden, A.M.: Education and Development: A Study of Human Capital Formation and Role in Economic Development in India, unpublished Ph.D. thesis, Kurukshetra University, Kurukshetra, 1965.
- Organisation for Economic Cooperation and Development: "Targets for Education in Europe in 1970, Vol. XIII," Policy Conference and Economic Growth and Investment in Education, Paris, January, 1962.
- Organisation for Economic Co-operation and Development: Educational Expenditure in France, Japan and the United Kingdom, Paris 1977.
- Panchamukhi, V.R. and Panchamukhi, P.R. "Socio-Economic Variable and Urban Incomes," in H.N. Pandit (ed) op. cit.
- Pandit, H.N.; Effectiveness and Financing of Investment in Education in India 1950-51 to 1965-66, unpublished doctoral thesis, Delhi University, Delhi, 1972.
- Parnes, H.S.; "Manpower Analysis in Educational Planning" in H.S.Parnes (ed) Planning Education for Economic and Social Development, OECD, Paris, 1964.
- Prakash, S.; "An Input-Output Model for Educational Planning" Artha Vijnana. Vol. 13. No. 2 June 1971
- Prakash, S.; Educational System of India, An Econometric Study, Concept Publishing Company, New Delhi, 1977
- Prakash, S.; "Projection of Occupational-Educational Structure of Manpower = A study of Public Sector Industries" in Artha Vijnana Vol. 13, No. 1, March, 1971.
- Prakash S.; Cost of Education, Theoretical Explorations and Empirical Prognostication, Anamika Publishers & Distributors Delhi, 1966.
- Prakash S.; "Optimisation of Resource use in Elementary Education in India" in Koti, R.K. et al.; (ed) Studies in Indian Economy (Prof. P.N. Mathur Memorial volume) Himalaya Publishing House, Bombay, 1996 (a).
- Prakash, S. and Radhakrishnan, C., "Private Demand for Education Analysis of Socio-Economic Factors: A case Study of Saugar University," Manpower Journal, 1973
- Psacharopoulos, G.: "Returns to Education: An updated international comparison," in Comparative Education, 1981.

- Ramanujam, M.S.; "Planning Models for Optimum Allocations of Resources in Education" in H.N. Pandit (ed) op. cit
- Shultz, T.W., "Capital Formation by Education" in *Journal of Political Economy*, Vol. 68, December 1960
- Shultz, T.W. "Education and Economic Growth" in H.G. Richey (ed) *Social Forces influencing American Education* Chicago, 1961.
- Shultz, T.W., "Investment in Human Capital" *American Economic Review* Vol. 51, 1961
- Shultz, T.W., *Investing in People: (The Economics of Population Quality)* Hindustan Publishing Corporation (India) Delhi, 1981.
- Shultz, T.W., "Education and Population Quality" in George Psacharopoulos (ed) op. cit
- Smith, Adam, (1876) *The Wealth of Nations* Modern Library Edition, New York, 1973.
- Svennilson, I., et. al., *Policy Conference on Economic Growth and Investment in Education, Volume II, Targets for Education in Europe in 1970*, OECD, Paris, 1962.
- Solow, R.M., "Technical Change and the Aggregate Production Function," *Review of Economics and Statistics*, August 1957.
- Stone, Richard, "A Model of the Educational System" in Richard Stone (ed) *Mathematics in the Social Sciences and Other Essays* Chapman & Hall, London, 1966.
- Strumillin, S.G., "The Economic Significance of National Education" in E.A.G. Robinson and S. Vaizey. (eds) *The Economics of Education*, Macmillan, 1966.
- Tilak, J.B.G: *The Economics of Inequality in Education*, Sage Publications, New Delhi, 1987.
- Tinbergen, J., and Bos, H.C., "A Planning Model for the Educational Requirements of Economic Development" in *Econometric Models of Education*, OECD, 1965.
- Walsh. J.R. "Capital Concept Applied to Man" *Quarterly Journal of Economics*, Vol. 49, 1935
- Woodhall, M., "Cost Analysis in Education" in George Psacharopoulos (ed) op. cit.

CHAPTER - II

SOCIO-ECONOMIC PROFILE OF THE STATE

CHAPTER - II

SOCIO-ECONOMIC PROFILE OF THE STATE

2.1. Location, Area and Topography :

Mizoram is a small state lying approximately between 21.58' to 24.35'N latitude and 92.15 to 93.29'E longitude. The total geographical area of the state is 21,087 sq. km constituting about 0.64 per cent of the total area of India (Statistical Handbook, 1994) It has a strategic location having international boundaries with Myanmar in the east and south, Bangla Desh and of Tripura in the west. Further, the state is bounded by the Cachar District of Assam and Manipur in the north. Mizoram has about 404 km length of international boundary with Myanmar and 316 kms length with Bangla Desh (Fig. 2.1).

The topography of Mizoram consists predominantly of mountainous terrain of tertiary rocks. The mountain ranges run north to south direction in parallel series. These ranges are separated from one another by narrow and deep river valley with only a few and small patches of flat lands lying in between them. The terrain of Mizoram is young and so the geomorphic features do not show much diversity in the formation of the landforms. Most of the landforms observed are of erosional nature.

The landforms of Mizoram have been classified as follows:-

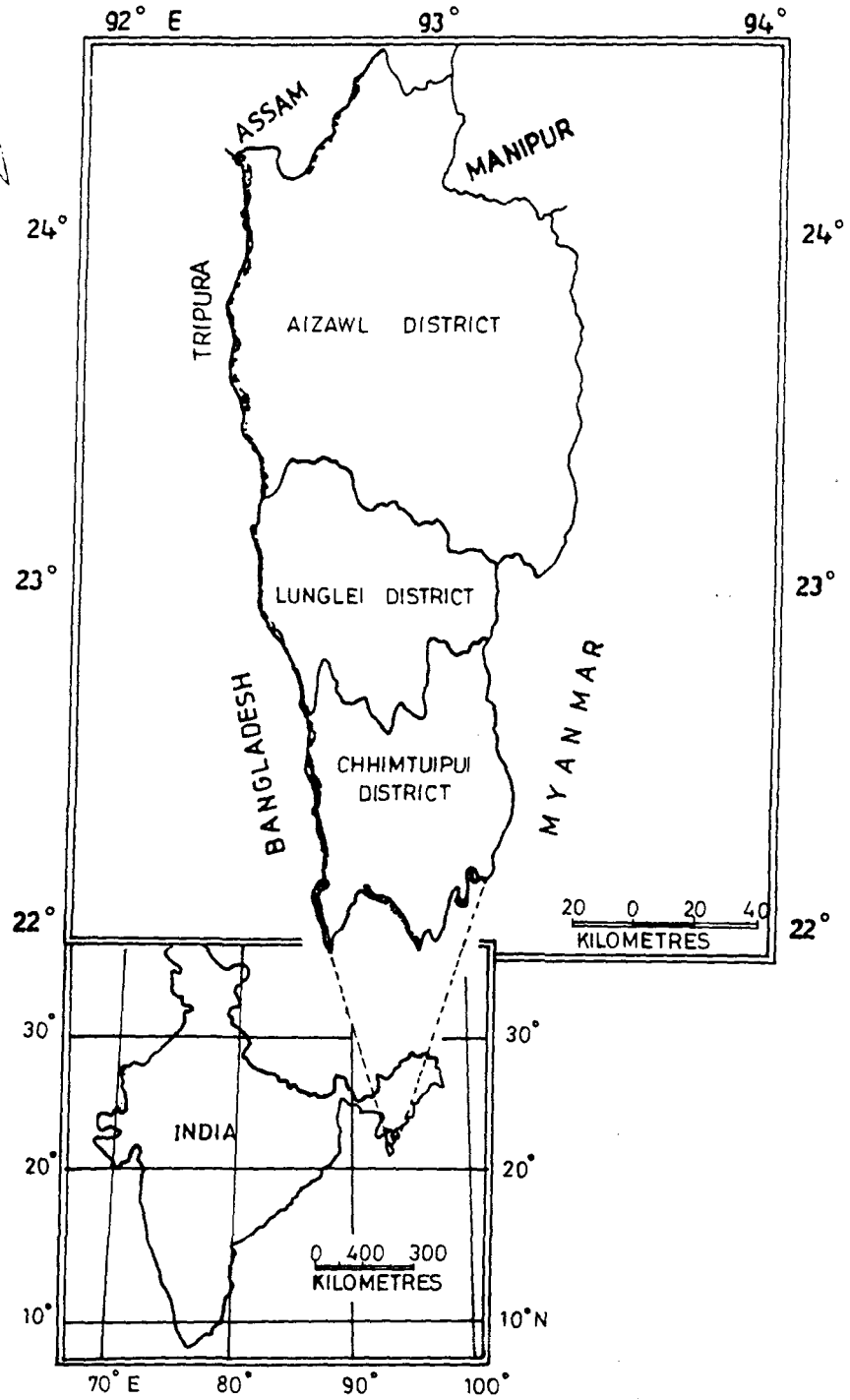
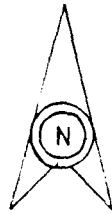
- a) **Mountainous Terrain Province:** The relief, especially in the eastern part of the state, varies between 400 to 2158 meters, the average elevation being over 1,000 meters in this part. The slopes are very steep and the elevation differences between hilltops and valleys vary between 200 to 600 meters.

- b) **Ridge and Valley Province:** The western part of the State shows characteristic ridge and valley type topography. The relief in this part, varies from 40 to 1550 meters and the average elevation is 700 meters. The relief is lower in the western part and increases towards the east. The slopes are generally steep and the elevation differences between valley floor and hilltop is from 100 to 200 meters.

- c) **The Flat Lands:** There is hardly any flat lands in Mizoram except a few valley plains located in the midst of hills and narrow valleys. These valley plains are covered by rich alluvial soil. The valley plains in such places like Champhai, North Vanlaiphai and Thenzawl are used for permanent cultivation. The other area of the plain 'Chamdur' in the south-western part of Chhimituipui District is still covered with thick forest and is yet to be explored.

The Champhai plain with a length of 11.27 kms and 4.88 km. wide at a distance of 195 km. east of Aizawl is the largest plain in Mizoram.

LOCATION OF MIZORAM



SOURCE : PACHUAU (1991)

FIG 2.1

The drainage system of the state consists of a number of small rivers and streams. Most of them are of ephemeral nature, depending on monsoon rains. Their volume and level fluctuate greatly in dry and rainy seasons. Most of the drainage lines originate in the central part of the State and flow towards either north or south influenced by the north-south trending ridges. The rivers flowing towards the north the river Barak in Assam. The main rivers of the state are Tlawng, Tuirial, Tuivawl (all flowing northwards) and Tiau, Chhimtuipui, Khawthlangtuipui (all flowing south-wards).

2.2 Climate and Rainfall:

Mizoram, being located on a tropical region enjoys a moderate climate. It falls under the direct influence of the south-west monsoon and as such, the region receives adequate rainfall. The climate is humid and tropical featured by short winter and long summer with heavy rainfall. The summer temperature ranges from 25°C to 29°C, whereas it is 18°C to 25°C in autumn and 11°C to 23°C in winter.

The average rainfall in Mizoram is about 250 cm per year, though it may increase to 350 cm in the north-west part of the State. Generally, it rains during May to September; July and August being the rainiest months. November to January are dry months with minimum rainfall. Among the districts, Lunglei had the highest annual rainfall during 1990 to 1992 (Table 2.1).

Table 2.1 Rainfall in Mizoram 1990-1992 (in cms)

District/Year	1990	1991	1992
1. Aizawl	264.7	237.9	226.6
2. Lunglei	430.2	318.5	296.1
3. Chhimituipui	357.2	229.0	207.6
MIZORAM	350.8	261.8	243.2

Source : Statistical Handbook, Mizoram 1992

2.3 Social and Cultural Background:

The Mizos are of Mongoloid stock and their language also belongs to the Assam-Burman sub-group that branches from Tibeto-Burman group of the main Chinese-Tibeto race (Lalthangliana, 1977). Earlier, Mizos are known in different names. The Burmese or Myanmarese called them 'Chin' and the areas occupied by them in Myanmar is known till today as 'Chin Hills'. In India, Mizos are known previously as 'Kuki'. Even today, a sizeable Mizo sub-tribes living in Manipur are known as Kuki. But now, the term Mizo is being accepted as common name by almost all the major sub-tribes of the Mizo people who are presently inhabiting Mizoram and its adjoining areas in the North Eastern Region of India, Chin Hills of Myanmar and Chittagong Hills Tract of Bangla Desh.

The original homeland of the Mizo people is believed to be somewhere in China. However, in the absence of any written records and other evidences, the early historical account of Mizo

society simply rely on oral tradition in the form of folktales and folksongs. Since there is no concrete evidence about the origin of the Mizo people, there are divergent views in respect of the original homeland of the Mizos and their migratory route from their early habitat to their present settlement in India, Myanmar and Bangla Desh.

It is believed that, like all other Tibeto-Burman group, Mizos had once lived probably at the T'ao valley of Kansu province in North West of China some 2000 B.C. years ago. Because of many disturbances made by the Chinese these people might have moved to the north east of Tibet. The Chinese under Ching in 1000 B.C. made further attacks and in order to avoid them, the Tibeto-Burman group travelled across ridges and forests and escaped into south. Eventually, they came to the border of Tibet and Burma after several hundreds years of journey (Than tun 1969). According to Luce (1959) the Mizos came to Chindwin valley in Myanmar through the Hukawng valley.

The Mizos who had confined their settlement in the Kabaw valley especially around Khampat in Myanmar from the middle of 9 century to late 13 century A.D. left the area due to the attacks made by the powerful Shan tribe. Later, they moved to the present Chin Hills and some of them went as far as their present settlement in the various parts of North East Region of India (Study Group, 1996).

There are several sub-tribes and clans among the Mizos. The study Group identified eight major sub-groups which may be classified them as follows: (i) Ha-lam (Mizo sub-tribe and family group living in Tripura), (ii) Hmar or Fenngo, (iii) Lai or Pawi, (iv) Lusei, (v) Mara or Lakher, (vi) Paite, (vii) Ralte and (viii) Thado-Kuki. The Mizo people have a rich and varied colourful cultural heritage which are preserved and enriched till today. Earlier, the Mizos used to observe three kinds of festivals or kut. Pawl Kût is held at the end of a harvest. It falls sometime between December and January. The most popular and enjoyable one is called Chapchar Kût which is observed usually during March and April. Festival in remembrance of the dead is called Mim Kût, held in August and September.

In the early socio-political system, the chief ruled the villages with the support of some of the village elders. The Chief has supreme authority over the affairs of the villages. Each village has their own beachelor's dormitory called Zawlbuk which is the heart and centre of the village life and provides security and defence for the whole village.

The British in 1890 annexed Mizoram. The Mizos came under the influence of western christian missionaries in the later part of the 19th century and now a majority of them practise christianity with devotion. The Mizo society is a close-knit one and it attaches great importance to kinship, social relations and co-operation. There is no discrimination on grounds of sex or status in Mizo Society. In social life, Mizo enjoys freedom. Free mixing of boys and girls is permitted. Though the patriachal family system is practised, women enjoy a position of honour and freedom in society.

2.4 Administrative structure:

Mizoram is formerly known as Lushai Hills and it remained under British administration for nearly six decades. Before Independence, Lushai Hills was administered by the Superintendent as a representative of the Viceroy of India. He was directed not to interfere in the internal affairs of the people and the administration of the internal matters of the people was entirely left to the chiefs and their elders who exercise their power in accordance with the customary laws of the land.

When the Constitution of India came into force, the Lushai Hills was made an Autonomous District under the Sixth Schedule to the Constitution and a District Council was formed in 1952 for the area covered by Aizawl and Lunglei Sub-Divisions. A Regional

Council was started in 1953 for the region inhabited by the Pawis, the Lakhers and the Chakmas. In 1954, the Lushai Hills District was re-named Mizo District by an Act of Parliament called the Lushai Hills District (Change of name) Act, 1954. Chieftainship was abolished by the Assam Lushai Hills (Acquisition of Chiefs Right) Act of 1954 and Village Councils were constituted on the basis of universal suffrage.

In 1972, Mizo District was separated from Assam and made a Union Territory according to the provisions of the North East Areas Reorganisation Act 1971. The Mizo District Council was dissolved and the Mizo Autonomous District ceased to exist. The Pawi-Lakher Autonomous Districts was divided into three Autonomous District- Mara, Lai and Chakma and three Autonomous District Councils one for each were formed. The Regional council ceased to function.

In 1987, statehood was conferred to Mizoram to become one of the states of the Indian Union according to the provisions of the 53rd Constitution Amendment Bill, 1986 and the State of Mizoram Bill, 1986 passed by the Union Parliament.

At present, Mizoram has three districts, namely (1) Aizawl District (2) Lunglei District and (3) Chhimtuipui District. Aizawl and Lunglei have no Autonomous District within their areas, but Chhimtuipui District comprises the three Autonomous Districts- Lai (Pawi), Mara (Lakher) and Chakma. Each of these three Autonomous District has its own separate Headquarters, Lai Autonomous District at Lawngtlai, Mara at Saiha and Chakma at

Chawngte. The Administrative District of Chhimituipui as a whole has a separate Headquarters at Saiha (Figure 2.2).

Aizawl District is the largest district with an area of 12,583 sq.km. The district has four sub-divisions, namely (1) Aizawl (Sadar), (2) Kolasib (3) Champhai and (4) Mamit. The administrative headquarters of the District is Aizawl which is also the State Capital of Mizoram. Lunglei District has a total area of 4,336 sq.m and the smallest one is Chhimituipui District with a total area of 3957 sq.kms. Lunglei District has two sub-divisions at Lunglei (Sadar) and Tlabung while Chhimituipui has three sub-divisions at Saiha, Lawngtlai and Chawngte. Lunglei town is the administrative headquarters of Lunglei District. Each district is under in charge of a Deputy Commissioner and each sub-division under a Sub-Divisional Officer (Civil).

There are 20 community development blocks, each under a Block Development Officer (B.D.O). According to the 1991 census, there are 698 habited villages and 22 towns. In Mizoram there is neither any municipal corporation nor any gram panchayat. There are, however, Village Councils to look after the general Welfare of the people at the Village level. The members of these Village Councils are elected by the people through democratic process. In 1994, there were 681 villages having Village Councils.

MIZORAM ADMINISTRATIVE DIVISIONS

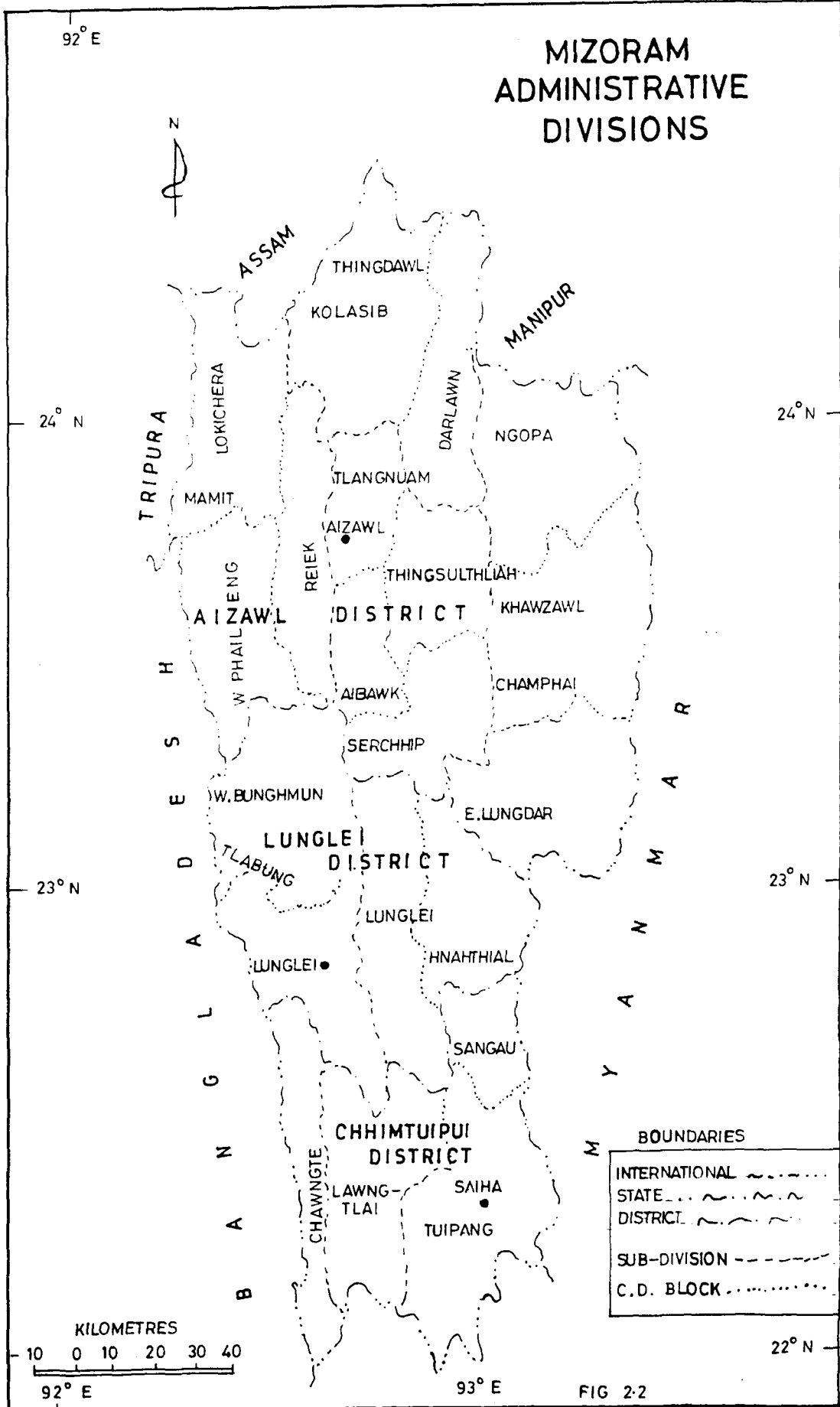


Table 2.2: District-wise Areas, Distribution of Villages, Towns and Blocks.

State/District	Area (in Sq.km)	No.of Inhabited Villages	No.of towns	No.of Blocks
Mizoram	21,087	698	22	20
Aizawl	12,583 (59.67)	342 (49.00)	18	12
Lunglei	4336 (20.56)	158 (22.64)	03	04
Chhimituipui	3957 (18.77)	198 (28.36)	01	04

Note : Figures in bracket indicate percentage to total numbers.

Source : Primary census Abstract, 1991 (Mizoram) NIC, Mizoram State Unit, Aizawl.

Table 2.2. gives detail about the areas, number of villages, town and blocks in Mizoram. Aizawl District occupied nearly 60 per cent of the total area of the state and 49 per cent of the inhabited villages are located in the District. Further, 18 out of the 22 statutory town declared so far are located in Aizawl District and 12 of the Development Blocks are located in the District.

2.5 Resource base of the Economy:

The resources of the State can be classified as Physical and human resources. Physical resources includes natural resources such as land, mineral, water, forest and all sorts of man-made instruments of production such as tools, machineries and buildings. In recent years, the importance of human resource in the development process of a nation has been recognised. Most economists now agreed that it is the human resources of a nation, not its capital or its material resources, that ultimately determine the character and pace of its economic and social development.

In the following section, attempt has been made to describe the major resources of the State, namely, human resources, land resources and forest resources.

2.5.1. Human Resources:

Human resources constitute the most important resource of the State because other resources such as minerals are not found yet. It is therefore necessary to know in quantitative terms the number of people living in the state, the rate at which they are growing, their composition and distribution.

i) **Size and Growth rate:** At the beginning of this century, Mizoram's population was 82 thousand; by 1991 census, the population of Mizoram has come to 690 thousand (Table 2.3). During 1901 to 1991, the population of Mizoram grew by 608 thousand persons i.e. by 741 per cent.

Table 2.3. Key Population Statistics of Mizoram, 1901-1991

Census Year	Total Population (000)	Decade variations (percentages)	Density (persons per sq.km)	Male (000)	Female (000)
1901	82	+	4	39	43
1911	91	+10.64	4	43	48
1921	98	+ 7.90	5	46	52
1931	124	+26.42	6	59	65
1941	153	+22.81	7	74	79
1951	196	+28.42	9	96	100
1961	266	+35.61	13	132	134
1971	332	+24.93	16	171	161
1981	494	+48.55	23	257	237
1991	690	+39.70	33	359	331

Source: Statistical Handbook, Mizoram 1992

The decadal growth rate of the total population of the State during the last 90 years reveals that the lowest growth rate of 7.9 per cent was registered during the decade of 1911-1921 and the highest of 48.5 per cent during 1971-1981. During the decade of 1981-1991, the population of Mizoram has increased by 39.7 per cent and the growth rate of the population has gone down by 8.85 per cent during the decade of 1981-91 from the 1971-81 level.

The trend in the density of population in Mizoram from 1901 to 1991 as presented in Table 2.3 indicates that the density of population per sq.km increased from 4 persons in 1901 to 33 persons in 1991. As compare with the density of population of 267 per sq.km at the national level, the figure for Mizoram is quite low indicating a favourable land-man ratio at the state level.

The demographic characteristics at the district level presented in Table 2.4 shows that in 1991 census, Aizawl District, being the largest in area had nearly 70 per cent of the total population while Lunglei District and Chhimituipui District's share were 16 per cent and 14 per cent respectively. The density of the population per sq. km was the highest in Aizawl District in 1991 and this was followed by Chhimituipui and Lunglei. The density of population in Aizawl District i.e. 38 persons per sq.km was higher than the state population's density, i.e., 33 persons per sq.km. During 1981-91 Chhimituipui District had the highest decadal growth rate among the three districts followed by Aizawl and Lunglei district. The sex-ratio was the highest in Aizawl District followed by Chhimituipui District.

In Table 2.5., the birth and death rate in Mizoram is given. The overall birth rate per 1000 population as per the records provided by the Directorate of Economics and Statistics was 22 persons for the whole of Mizoram while death rate was 4 persons per 1000 persons. The rural-urban data revealed that the birth rate was higher in the rural areas but the death rate was lower in the urban area.

Table 2.4 Distribution of Population, Sex Ratio, Growth Rate and Density of Population By District (1991)

State/ District	POPULATION			Sex-Ratio (Female per 1000 males)		Density of Population per sq.km		Decennial Growth Rate of population.	
	Persons	Males	Females	1981	1991	1981	1991	1971-81	1981-91
MIZORAM	6,86,217	3,56,672	3,29,545	919	924	23	33	48.55	38.98
AIZAWL	4,75,360	2,46,465	2,28,895	934	929	27	38	48.76	39.47
LUNGLEI	1,11,209	58,229	52,980	881	910	19	24	39.23	28.55
CHHIMTUIPUI	99,648	51,978	47,670	898	917	17	25	61.44	50.03

Source: Census of India 1991, Series-17 Mizoram, Paper-1 of 1991
Provisional Population Totals, Director of Census Operations,
Aizawl

Table 2.5. Births and Death Rate, District-wise, Mizoram, 1991

State District	Rural			Urban		
	Birth Rate	Death rate	Infant Death rate	Birth rate	Death rate	Infant Death rate
Mizoram	24.31	5.06	1.74	19.52	2.96	2.38
Aizawl	29.85	5.87	1.55	18.42	3.32	2.57
Lunglei	19.09	4.58	1.88	25.20	4.06	2.04
Chhimituipui	14.30	3.39	2.59	21.73	2.78	0.67
Overall :	<u>Birth Rate</u>		<u>Death Rate</u>		<u>Infant Death rate</u>	
	22.10		4.10		2.00	

Source : Statistical Handbook, Mizoram, 1992

The District-wise data showed that in Aizawl district the birth rate in rural areas is higher than urban areas, but in the two districts of Lunglei and Chhimituipui, the birth rate is lower in the rural areas as compared with the urban areas. The death rate in rural areas are higher in all the three districts of Mizoram. The lower death rate in urban areas can be explained in terms of the availability of health facilities along with the general improvement in the standard of living.

(ii) Urbanisation Pattern : In 1991, the urban population of Mizoram was 317946 lakh persons which constituted 46.09 per cent of the total population of the state. The level of urbanisation of Mizoram is very high, almost double to the national urbanisation level of 25.71 per cent. In table 2.6, the growth of urban population in Mizoram since 1951 is presented.

Table 2.6 Decadal Growth Rate of Urban Population: Mizoram

Year	No. of Towns	Total Population	Urban population	Percentage of Urban population	Decennial growth rate
1951	1	196202	6950	3.54	-
1961	1	266063	14257	5.36	+105.85
1971	2	332390	37759	11.36	+164.85
1981	6	493757	121814	24.67	+222.61
1991	22	689756	317946	46.09	+160.01

Source : Statistical Handbook Mizoram, 1992.

As given in the table, there were 22 townships which were classified as 'Urban' in 1991 census. The urban population as a percentage of the total population of the state increased from 3.54 per cent in 1951 to 46.09 per cent in 1991. In absolute terms, the urban population increased from 6950 persons to 317946 persons during the period of 1951 to 1991.

iii) **Occupational Structure of the State** : The occupational structure of a country refers to the distribution of its population according to different occupations. Broadly speaking, occupation can be divided into three groups. Agriculture, animal husbandary, fisheries. etc., are collectively called 'Primary' activities or industries. The products of these activities are essential or vital for human existence and they are carried on with the help of nature. Manufacturing industries, both small and large scale, are known as 'Secondary' activities. Transport, communication, banking and finance and services are 'tertiary' activities which help the primary and secondary activities in the country.

Economic development and occupational distribution are closely related. Economic progress is generally associated with certain distinct necessary and predictable changes in the occupational structure and shift of employment and investment from primary activities to secondary and tertiary activities. Economic development experienced in the present advanced countries like the United Kingdom, United States, Germany, Japan, etc. confirmed that there is a clear shift of the working population from agriculture and allied occupations to secondary and tertiary activities (Dutt and Sundaram, 1995).

In Table 2.7 the total working population as per 1991 census is given. According to this table, out of the total population of 6.9 lakhs persons, workers constituted 2.9 lakhs persons i.e., about 42 per cent. Out of the working population of 2.9 lakhs persons about 1.7 lakhs (58.3 per cent) were in rural areas and 1.2 lakh persons (41.7 per cent) were in Urban areas. Among the total male workers numbering 1.8 lakh persons, about 1 lakh persons (56 per cent) were in rural areas and about 78 thousand persons (44 per cent) were in urban areas. Among the total female workers numbering a little more than one lakh persons, rural workers accounted for 69 thousand persons (62 per cent) and Urban workers numbered 42 thousand (38 per cent).

Table 2.7 Total Workers in Mizoram, 1991.

Particulars	Persons	Males	Females
I. Total population	689756	358978	358978
Total Workers	290317	178011	112306
% of Workers	42.09	49.59	31.28
II. Rural population	371810	194414	177396
Rural Workers	169337	99722	69615
% of Workers	45.54	51.29	39.24
III. Urban population	317946	164564	153382
Total Workers	120980	78289	42691
% of workers	38.06	47.57	27.83

Source : Primary Census Abstract, NIC Mizoram State Unit, Aizawl.

The occupational structure of the working population in Mizoram is presented in Table 2.8. The occupational structure clearly indicates that the state economy is highly underdeveloped. The majority of the working population was engaged in primary sector and a very small proportion was found in industry and tertiary sectors. As much as 65.8 per cent of labour force was engaged in primary sector, and shifting cultivators constituted 61.3 per cent while agricultural labourer and livestock, forestry etc., accounted 3.3 per cent and 1.1 per cent respectively. In India as a whole primary sector provided work to 66.8 per cent of the labour force of the country and the share of cultivators, agricultural labourer, livestock, forestry, etc., were 38.4 per cent, 26.4 per cent and 1.9 per cent, respectively.

Table 2.8 Occupational Classification of Workers, 1991
(Mizoram & India)

	Mizoram		India
	persons	percent	percent
A. Primary sector (1+2+3)	190945	65.8	66.8
1. Cultivators	178101	61.3	38.4
2. Agriculture labourer	9527	3.3	26.4
3. Livestock, Forestry, Fishing, hunting, plantation, etc.	3317	1.1	1.9
B. Secondary sector(4+5+6)	15353	5.3	12.7
4. Mining & Quarrying	631	0.2	0.6
5. Manufacturing	-	-	10.2
(i) Household Industry	2958	1.0	-
(ii) Other than Household industry	4606	1.6	-
6. Construction	7158	2.5	1.9
C. Tertiary Sector (7+8+9)	84019	28.9	20.5
7. Trade & Commerce	15078	5.2	7.5
8. Transport, Storage and Communication	3304	1.1	2.8
9. Other Services	65637	22.6	10.2
Total (A+B+C)	290317	100	100

Note : Per cent refers to the percentage to the total workers.

Sources : 1. Primary Census Abstract 1991, National Informatic Service, Mizoram State unit Aizawl.

2. Dutt & Sundaram (1995)

In secondary sector, only 5.3 per cent of the total labour force was engaged. At the national level, secondary sector constituted 12.7 per cent of the total working population. The respective share of mining & quarrying, manufacturing and construction were 0.2 per cent 2.6 per cent and 2.5 per cent respectively. These data revealed that the level of industrial activities in the state has been quite low.

Again, tertiary sector accounted for about 28.9 per cent of the labour force in Mizoram whereas, the data for the national level was only 20.5 per cent. About 5.2 per cent of the working population was engaged in trade and commerce; transport storage, and communication and other services claimed 1.1 per cent and 22.6 per cent respectively.

2.5.2. Land Resources and Utilization Pattern in Mizoram:

Land is the most important natural resources and it is the fundamental determinant of socio-economic development of a nation. It is, therefore essential to make proper planning to realise an optimum use of land resources. In the context of Mizoram where there is limited opportunities for secondary and other tertiary activities, land-based activities are crucial for the subsistence of the rural poor. Table 2.9 highlights land use classification of Mizoram for the year 1988-89.

Forest occupied 61.81 per cent of the geographical area of the state in 1988 to 89 . About 10 per cent of the total area was listed as not available for agriculture, being either barren or

put to non-agricultural use. Pastures and cultivable waste land covered 81000 hectares, i.e. 3.84 per cent of the total area. Roughly 21 per cent consisted of fallow lands. Net area shown covered only 65000 hectares which was 3.08 per cent of the total area of the state.

Table 2.9. Land Use Classification in Mizoram 1988-89
(Provisional)

Sl.No.	Particulars	Area (Thousand Hectare)	Percentage to Total Area
1.	Total Geographical Area	2108	100
2.	Reporting Area for land utilisation	2102	99.71
3.	Forest Area	1303	61.81
4.	Not available for Cultivation		
	(i) Area put to non-Agricultural uses	10	0.47
	(ii) Barren and uncultivable land	201	9.53
	Total (i+ii)	211	10.00
5.	Other uncultivated land excluding Fallow land		
	(i) Permanent pastures and other grazing land	4	0.19
	(ii) Cultivable waste land	74	3.51
	(iii) Others	3	0.14
6.	Fallow land		
	(i) Current fallows	183	8.68
	(ii) Fallow land other than current fallow	259	12.27
7.	Net Area Sown	65	3.08

Source : Basic Statistics of North Eastern Region 1992, NEC Secretariat, Shillong.

In Mizoram, the estimated potential area for agriculture (Wet Rice Cultivation), terracing, horticulture and forestry in 1991 was follow (Directorate of Agriculture, Mizoram):-

(1) 0-8% slope suited for Wet Rice Cultivation is 50,021 hectares;

(2) 8-20% slope suited for terracing, plantation etc. is 87,824 hectares;

(3) 20-50% slope suited for horticulture etc. is 9,33,168 hectares;

(4) above 50% slope suited for forestry is 9,88,369 hectares.

2.5.3 Forest Resources of the State:

Forests constitute the basic resource of the State's economy. Out of the total geographical area of the state, as much as 15935 sq.km is covered by Forest which accounts for 75.57 per cent of the total area of Mizoram (Statistical Handbook, 1992). Forests in Mizoram are of mainly three types:-

- a) Tropical Wet Evergreen Forests
- b) Tropical Semi-Evergreen Forests
- c) Montane Sub-Tropical Forests.

Tropical Wet-Evergreen Forests are mainly found in the western part of the state adjoining Bangla Desh, Tripura and Assam. About 20 percent of the State's geographical area is covered by these forests. Tropical Semi-Evergreen Forests are mostly confined to the central part of the state from Chhimbauipui river in the south to the Manipur border in the north and cover 50 per cent of the total area of Mizoram. The third category is found in the higher elevations, mostly in the eastern areas along Myanmar border.

Administratively, Mizoram forests are classified into (1) State owned (2) Village Council controlled and (3) District Council Owned Forests. The detail classification and areas under each class are shown in Table 2.10.

Table 2.10 Administrative Classification of Forests in Mizoram

Categories of Forests	Total Area	
	Sq. Km	per cent
A. State Owned Forests		
1. Protected Forests	1300	8.16
2. Reserved Forests	5146	32.29
3. Wildlife Sanctuaries	681	4.27
B. Village Council Controlled Forests		
1. Village Safety & Supply Reserved	1782	11.18
2. Unclassed State Forest (Controlled by Revenue Deptt.)	5240	32.88
C. District Council Owned Forests (Chhimituipui District)		
1. Protected Forests	347	2.18
2. Reserved Forests	363	2.28
3. Wildlife Sanctuaries	210	1.32
4. Village Safety and Supply	866	5.43
Grand Total	15,935	100

Source: Statistical Handbook Mizoram, 1992, p. 138

As given in Table 2.10 the State government controls directly about 77.6 of total forest areas including those under the State's Revenue Department. About 11.18 per cent is classified as Village safety and reserved, managed by the Village Councils and the three Autonomous District Councils of Chhimituipui District control about 11.21 per cent including those under Village councils in the District.

Forests are a good source of revenue for the state. Timber forms the major source of revenue as far as the forest economy of the state is concerned. The important timber species found in the state are: (a) Thlanvawng (Gmelia arborea) (b) Ngiau (Michelia Champaca) (c) Sahatah (Anmoola Wallichii) (d) Khiang (Schima Wallichii) etc. Bamboos and Canes are another important forest produce of Mizoram. Bamboos provide useful raw materials for the construction of houses, for making handicrafts and other cottage industries. In fact, bamboo is perhaps the only forest resource of the state which can support the forest-based industries. Forest revenue realised by the state government are presented in Table 2.11.

Table 2.11 Forest Revenue in Mizoram

Year	Revenue (Rs. in thousand)
1985-86	1602.63
1986-87	2728.22
1987-88	4095.45
1988-89	4474.87
1989-90	7519.13
1990-91	10859.06
1991-92	9276.00
1992-93	11991.00
1993-94	11320.00

Source : Statistical Handbook Mizoram, 1989, 1992 & 1994

As given in Table 2.11 forest revenue realised by the state government has been increasing over the years. During 1985-86 to 1993-94 forest revenue increased from Rs 1602.63 thousand to Rs 11320 thousand, thus representing an increase of more than seven times during this period.

2.6 Growth of State Domestic Product:

State Domestic Product measures goods and services produced by the residents of a particular State, counted without any duplication. The overall performance of Mizoram economy can be judged and evaluated on the basis of the magnitude of State Domestic Product (SDP) which are available over the years. In table 2.12 the data relating to Net State Domestic Product and Per Capita income of Mizoram at current prices for the period between 1980-81 and 1991-92 are given.

Table 2.12 Net State Domestic Product at Factor Cost and Per Capita Income at current prices, Mizoram (1980-81 to 1991-92)

Year	Net State Domestic Product (Rs. in Crores)	Per Capita Income (Rs)
1980-81	62	1289
1981-82	70	1383
1982-83	78	1471
1983-84	95	1724
1984-85	122	2139
1985-86	157	2658
1986-87	194	3165
1987-88	258	4077
1988-89	260	4026
1989-90	280	4135
1990-91	305	4474
1991-92	417	5941
Growth Rate(%)	17.1	13.6

Source: 1. Basic Statistics of North Eastern Region, 1992 NEC Shillong.
2. Gov't of Mizoram, Directorate of Economics & Statistics, Aizawl.

As given in Table 2.11 the net State Domestic Product rose from Rs 62 crores in 1980-81 to Rs 417 crores in 1991-92 and the growth rate recorded is 17 per cent annually. The per capita income increased from Rs 1289 to Rs 5941 during the same period and the annual growth rate is 13.6 per cent.

The composition of State Domestic Product, given in Table 2.13 reveals the following pattern and trends during the period between 1985-86 and 1991-91:-

- 1) The share of primary sector which includes agriculture, forestry, fishing, etc. has increased from 35 per cent in 1985-86 to nearly 39 per cent in 1991-92.
- 2) The share of the secondary sector which includes mining, manufacturing industries, construction, electricity, gas and water supply have marginally increased from 15 per cent to 16 per cent during the period given in the Table. However, in 1990-91, the share of this sector rose as much as 20 per cent.
- 3) Tertiary sector constitutes the most important sector of the State economy. Tertiary sector includes trade, transport, communications, banking, insurance, real estate, public administration and other services. In 1985-86, this sector contributed about 50 per cent of the total domestic product of Mizoram, however, the share of this sector declined to 45 per cent in 1991-92. The composition of tertiary sector can be divided as follows: (a) Transport, trade, banking and real estate which formed about 25 per cent in 1985-86 had decreased

Table 2:13 . Net State Domestic Product at Factor Cost By Industrial origin at Current Price, Mizoram 1985-86 to 1991-92

		Rupees In lakhs					
Industry	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92
1 Primary Sector	3484 (34.90)	7367 (37.90)	10456 (40.40)	8536 (32.80)	10065 (35.80)	9139 (29.90)	16119 (38.60)
2 Secondary Sector	2406 (15.30)	3111 (16.00)	4042 (15.60)	4912 (18.90)	4915 (17.50)	6182 (20.20)	6862 (16.40)
3 Tertiary Sector	7835 (49.80)	8935 (46.00)	11388 (44.00)	12559 (48.30)	13096 (46.60)	15239 (49.90)	18752 (44.90)
a) Transport, Trade, Building & Real Estate	3906 (24.80)	4232 (21.80)	5301 (20.50)	5740 (22.10)	6017 (21.40)	7189 (23.50)	8196 (19.60)
b) Public Administration	2147 (13.70)	2935 (15.10)	3742 (14.40)	3710 (14.30)	3997 (14.20)	4849 (15.90)	6855 (16.40)
c) Other Services	1782 (11.20)	1768 (9.10)	2345 (9.10)	3109 (11.90)	3082 (11.00)	5201 (10.50)	3701 (8.90)
Total Net SDP	15725	19413	25886	26007	28076	30560	41735

Source: Gov't of Mizoram, Directorate of Economics and Statistics, Aizawl, Mizoram

to 19 per cent in 1981-92 (b) The share of public administration improved from 13.7 per cent in 1985-86 to 16 per cent in 1991-92, and (c) the share of 'Other service' had fallen from 11 per cent to about 9 per cent in 1991-92.

The analysis of State Domestic Product for Mizoram has serious limitation. Figures of net domestic product and per capita income are given at current prices. But these figures at current prices do not give a correct picture about the growth of the economy unless they are deflated at constant prices to eliminate the effect of any change in the price level during period under consideration. The net State Domestic product and per capita income of Mizoram converted into constant prices are not available.

2.7 Agriculture and the State Economy:

Agriculture is the backbone of the economy of Mizoram. This sector provides employment to about 66 per cent of the total labour force of the state and its share in the composition of net domestic product of the state is around 35 per cent to 40 per cent. The basic structural constraint to agriculture sector in Mizoram is the practice of shifting cultivation which is economically unproductive, ecologically unsound and technologically unviable for modernisation. Under these circumstances, the State has to face serious food shortages, necessitating huge import of foodstuffs and other essential items from other states to meet internal food requirement. Table 2.14 presents the major characteristics of the agricultural sector of the State.

In 1986-87, the gross cropped area per unit of rural population was 0.18 hectare and per capita rural income from agriculture was Rs 566. The national figures for these two items were 0.34 hectare and Rs 1,325 respectively. The average size of operational holding of the state in 1985-86 was 1.57 hectare as against the national average of 1.68 hectares. About 14 per cent of the gross cropped area of the state in 1985-86 was irrigated and this figure is very low compared to the average of 30.4 per cent at the national level. The consumption of fertilizer per hectares in 1990-91 was 13.5 Kgs in contrast to the all India average of 72.4 kgs. Table 2.14 makes it clear that the per hectare yield of major crops except maize and ginger are very low in Mizoram compared to the national's average.

Table 2.14 Indicators of Agriculture Development

Sl.No.	Particulars	Units	Total
Part A- General			
1.	Per capita (Rural) Gross cropped area (Average for 1984-85 to 1986-87)	Hectares	0.18(0.34)
2.	Average size of operational holding 1985-86	Hectares	1.57(1.68)
3.	Per capita (rural) income from agricul- ture (Average of 1984-85 to 1986-87)	Rs.	566.00 (1325.00)
4.	Gross Irrigated as percentage of Gross cropped area 1986-86	percentage	14.3(3.4)
5.	Consumption of Fertilizers 1990 (a) N+P+K per hectares	Kgs.	13.50(72.40)
6.	Consumption of Pesticides 1987-88 per hectare.	gms.	141(377)
Part B- Per Hectare yield of Crops 1990-91.			
1.	Rice	Kg/Hectare	1244(1751)
2.	Maize	-do-	1682(1524)
3.	Potato	-do-	266(16195)
4.	Ginger	-do-	7375(2786)
5.	Chillies	-do-	476(876)
6.	Banana	-do-	4368(1199)
7.	Sugarcane	-do-	3600(65269)
8.	Per capita milk production 1989-90	Kgs.	20.66(63.7)b
9.	Per capita egg production 1989-90	Nos.	28.77(25)c

Notes: Figures in the brackets indicate all-India average.
(a) Provisional. (b) & (c) are all-India average for 1990-91 respectively.

Sources : 1) Basic Statistics 1992 Vol-2 September 1989, C.M.I.E. Bombay
2) Basic Statistics 1992 NEC Secretariat, Shillong
3) Statistical Handbook, Mizoram 1987.

The pattern of agricultural land use in Mizoram is given in Table 2.15. The pattern indicates that only 3 thousand hectares had been put to cultivation to more than once and net irrigated area constituted 8 thousand hectares. Livestock density in 1992 was 32 numbers per Sq.km.

Table 2.15 Pattern of land use under Agriculture in Mizoram.

Sl. No.	Particulars	Units	Area
1.	Net Sown Area 88-89	Thousand Hectares	65.0
2.	Area sown more than once (88-89)	-do-	3.0
3.	Net irrigated area (88-89)	-do-	8.0
4.	Area under Food Crops (85-86)	-do-	60.0
5.	Area under non-food crops (85-86)	-do-	10.0
6.	Area under Fruits Crops (90-91)	-do-	7.5
7.	Area under Rubber Plantation (90-91)		
	(i) Rice	-do-	51.3
	(ii) Maize	-do-	6.6
	(iii) Ginger	-do-	2.4
	(iv) Sugar Cane	-do-	0.5
	(v) Potatoes	-do-	0.8
	(vi) Chillies	-do-	2.1
	(vii) Banana	-do-	1.9
9.	Annual Area under Shifting Cultivation (1983)	Sq.Km	630
10.	Livestock Density 1992	Sq.Km	32.1

Source: 1. Basic Statistics, Vol-2 Sept. 1989, C.M.I.E. (Bombay)
 2. Basic Statistics 1992 NEC Shillong
 3. Statistical Abstract, Animal Husbandary and Veterinary Department, 1994-95, Mizoram.

2.8. Industrial Sector:

Mizoram is industrially backward and the contribution of this sector in the state economy is also marginal. In 1991, the secondary sector which includes mining, quarrying, manufacturing and construction absorbed 15353 working population which accounted for 5.3 per cent of the total labour force of the

state. The share of this sector in the total production was 16.4 per cent in 1991-92. The notable feature of industrial structure of the state is that it was confined to small scale, cottage and tiny sectors. Table 2.16 presents the growth of industrial establishments and employment for the period between 1979 to 1990. In 1979, there were 15 industrial units registered in Mizoram with total employment of 107 persons. As on March 1990, the total units registered increased to 2205 numbers with 11574 employees. Total units registered increased by 148.65 per cent and industrial employment by 137.06 per cent during this period (Rualkhuma Colney, 1995).

Table 2.16 District wise SSI Units and Industrial Workers in Mizoram (1990).

	Aizawl District		Lunglei District		Chhimituipui District		Mizoram	
Year	No. of Units Regd.	No. of Person employ ed	No. of Units Regd.	No. of Person employ ed	No. of Units Regd.	No. of person employ ed	No. of Units Regd.	No. of persons employ ed
1979	15	107	-	-	-	-	15	107
1980	93	574	46	213	-	-	139	787
1981	99	490	19	65	-	-	118	555
1982	118	753	10	41	-	-	128	794
1983	94	480	2	3	-	-	96	483
1984	64	313	17	81	-	-	81	394
1985	154	879	22	96	29	185	205	1160
1986	308	1469	25	94	10	79	343	1742
1987	329	1756	44	184	-	-	373	1940
1988	150	840	42	164	10	50	202	1054
1989	336	1871	39	156	98	342	473	2369
1990*	25	164	7	25	-	-	32	189
Total:	1785	9796	273	1122	147	656	2205	11574

* - Figures of 1990 account for the registration during 1 Jan. to 31 March 1990 only.

Source: Rualkhuma Colney (1995).

In Table 2.17 employment, investment and production structure of Small Scale Industries (SSI) and Cottage Industries (CI) are given. The following inferences can be made from these data:

(i) The total investment in the total of 2205 units registered in Mizoram was worked out at Rs 776.631 lakhs in 1990 with annual production value of Rs 3058.26 lakhs. Investment per unit was the highest in the categories of Basic metal and allied industries (Rs 297.01) and lowest in Leather goods and repairing.

(ii) Similarly, employment per unit was the highest in Non-metallic and material products (13 persons per unit) and the lowest in Leather goods and repairing (2 persons per unit). The first category consists of Ice plant, Stone works, Brick-making, Cold drinks and Chalk making. The second categories included only shoe repairing which is mostly undertaken at the cottage level.

(iii) Out of 2205 industrial units registered in 1990, service-based industries constitutes 841 unit and shared about 38.14 per cent of the total units registered. Wood and wooden products constituted 18 per cent, Textile and textile good 13.6 per cent and Food products and allied Industries 11.43 per cent. These four groups constituted 81 per cent of the total industrial establishments of the State and the other 8 groups formed only 19 per cent of the industrial units of the state.

Table 2.17: Category-wise Distribution of Industrial Units, Employment, Production & Investment in SSI & CI, Mizoram (1990).

Sl. No.	Industrial Categories	Total Units	Total investment (Rs 000)	Investment per Unit (Rs 000)	Annual Production (Rs 000)	Average Production Per Unit	Total Employment	Employment per unit (in round figures)
1.	Food Product & Allied Industries	252	4413.20	17.51	30919.06	122.69	969	4
2.	Woods & Wood-en products	397	11279.88	28.41	48324.34	121.72	1894	5
3.	Textile & Textile Goods	300	4906.52	16.36	43356.80	144.52	1652	5
4.	Paper Product Publishing & Allied	100	7041.30	70.41	15051.38	158.51	658	7
5.	Rubber & Plastic works	35	6265.41	179.01	10846.50	309.89	183	5
6.	Chemical & Chemical Product	552	380.87	6.92	5342.15	97.139	105	3
7.	Non-metallic & material Products	55	7865.37	179.37	28830.20	524.17	747	13
8.	Basic metal & Allied Industries	21	6237.20	297.01	14632.25	696.77	241	11
9.	Metal Product & Parts	57	755.55	13.26	6103.95	107.09	200	3
10.	Leather goods & repairing	21	121.87	5.80	283.85	37.33	51	2
11.	Service-based Industries	841	19576.14	23.28	78794.16	93.69	4268	5
12.	Miscellaneous Industries	71	7388.54	104.06	22825.34	321.48	486	7
Total		2205	77663.30		305826.05		11574	

Source: Rualkhuma Colney, 1995

2.9 Infrastructure Development:

Development of infrastructure is crucial to the overall economic development and the general welfare of the society in a country. It is a wellknown fact that availability of power, irrigations, transport and communication, are the basic determinants of socio-economic development in both developed and developing countries. Table 2.18 summarizes the important indicators of infrastructure development in Mizoram.

In the field of transport, Mizoram had a total road length of 22.99 km per 100 sq.km in 1989; road length per 1000 population was 9.82 km in 1989. In 1987, the total villages connected by all-weathered roads were 135 villages, i.e., 19 percent of the total villages. The per capita consumption of electric power was 57 kwh in 1989 and the number of villages electrified as on March 1992 was 71.71 p.c. of the total villages.

Finance is highly essential for economic development. The availability of finance is broadly indicated by the number of bank offices per unit of population as well as per capita bank deposits. The number of bank offices in March 1992 was 11.50 per lakh population as against the national average of 72. The per capita bank deposits and advances in the State in Dec' 1991 were Rs 1652.76 and Rs 159.48 respectively. With regards to social infrastructure such as health, it may be mentioned that Mizoram had 12 hospitals and dispensaries per 1000 sq.kms in 1990 and the

number of beds per lakhs population was 188 in 1991. In respect of budgetary resources, the per capita development expenditure was Rs 417.25 in 1991-92 and per capita plan outlay during the Seventh Plan (1985-90) amounted to Rs. 5200.

Table 2.18 Indicators of Infrastructure Development, Mizoram.

Sl.No.	Particulars	Units	Total
1.	Road length per 100 sq.km in 1989	Kms	22.99
2.	Road length per 1000 population 1989	Kms	9.82
3.	Villages connected by all weathered road 1987-88	Total villages	135
4.	Vehicles per lakh population 1989	Nos	2236(a)
5.	Post Offices per lakh population 1990-91	Nos	46
6.	Beds in Hospital per lakh population 1991	Nos	188
7.	Hospital and Dispensaries per 1000 Sq.km in 1990-91	Nos	12.7(b)
8.	Population per Doctor in 31.12.1990	Persons	5123
9.	Villages electrified, March 1992	P.c	71.71
10.	Per capita consumption of Electric power 1989	Kwh	57
11.	Banks per lakh population, March 1990	Nos.	11.5
12.	Per capita Bank Deposits, Dec. 1991	Rs	1652.76
13.	Per capita Bank advances, Dec' 1991	Rs	159.48
14.	Per capita Budgeted expenditure on Education (Revenue Account) 1991-92	Rs	670.75
15.	Per capita expenditure on health 1989	Rs	434.00(c)
16.	Per capita Development Expenditure (Budget Estimates) 1991-92	Rs	417.25
17.	Per capita Plan Outlay (VII Plan)	Rs	5200 .00
18.	Infrastructure Development Index 1987-88	Points	70

Notes: (a) It is calculated from projected population of Mizoram
 (b) It included Primary Health Centre and Sub-Centre
 (c) It includes Medical, Family Planning, Public Health, Sanitation and Water Supply.

Source: 1. Statistical Handbook, Mizora, 1981, 1983, 1989, 1992
 2. Basic Statistics of N.E. Region, 1987, 1992
 3. Basic Statistics Relating to Indian Economy, Vol-2 Sept.1989, Centre for Monitoring Indian Economy (CMIE) Bombay.

REFERENCES:

- Centre for Monitoring Indian Economy (CMIE), **Statistics Relating to Indian Economy**, Vol-2, Sept-1989, Bombay.
- Datt, Rudder and Sundharam, K.P.M., **Indian Economy**, p-66, 32nd. Revised Edition, S.Chand & Company Ltd. New Delhi. 1995
- Dawngliana, M., **Census of India, 1991, Series-17, Mizoram, Paper 1 of 1991 (Provisional Population Total)** Director of Census Operation, Mizoram, 1991.
- Gov't of Mizoram, **Report on Socio-Economic Review 1979-80**. Bureau of Economics and Statistics, Aizawl, 1981.
- Gov't of Mizoram, **Statistical Handbook Mizoram (Various issues)** Directorate of Economics and Statistics, Aizawl.
- Lawma, T. **Perspective Plan for Conservation, Management and Development of Land Resources in North Eastern Region of India (A Report)** Deptt. of Economics, NEHU, Shillong 1995.
- Lalthangliana B. **History of Mizo in Burma (M.A., Dissertation)** Zawlbuk Agencies, Aizawl, 1977.
- Luce, G.H., **Old Kyaukse and the Coming of Burmans** JBBS, XL II, i. June 1959, p-89 (cited by B. Lalthangliana in **History of Mizo in Burma**, Zawlbuk Agencies, Aizawl, 1977)
- National Informatics Centre, **Primary Census Abstract, 1991** Mizoram State Unit, Aizawl.
- North Eastern Council, **Basic Statistics of North Eastern Region 1987,1992&1995**. Ministry of Home Affairs, Govt. of India, Shillong.
- Than, Tun, Prof: **Early Burmese History**, Kayah Thuhka Press, Rangoon, 1969 (Reprint) pp 19-24(cited by B.Lalthangliana in **History of Mizo in Burma**, Zawlbuk Agencies, Aizawl, 1977.
- Rualkhuma Colney: **Industrial Development in Mizoram- A case Study of Small and Cottage Industries**, (Unpublished Ph.D thesis) Deptt. of Geography, NEHU, Shillong, 1995.

CHAPTER - III

REVIEW OF LITERATURE

CHAPTER - III

REVIEW OF LITERATURE

The analysis of unit costs of education began in the early 1960s when economists developed a strong interest in the theory of human capital formation. In this Chapter, an attempt has been made to present the summary and findings of the research studies in the area of unit cost analysis of education which were undertaken by individual researchers, organizations and commissions.

Shultz (1960,1961,1963) estimated that cost of education, including forgone earnings, measured in current dollar prices in the United States increased from 400 million dollar in 1900 to 28.7 billion dollar in 1956. He estimated that more than half of the costs of higher education consists of income foregone by student. As early as 1900, income forgone accounted for about one-fourth of the total costs of elementary, secondary and higher education. By 1956, it represented over two-fifths of all costs. The percentage increase in the real cost of education was estimated to be 3.5 times as large as consumer income, suggesting an income elasticity of educational expenditure of 3.5. Educational costs also rose about three-and-half times as rapidly as did the gross capital formation of physical capital in dollar terms.

In 1956, resource cost per student per year worked out to \$ 280 for elementary, \$1,420 for high school and \$ 3,300 for higher education. In high school, 60 per cent of the cost represented earnings foregone per student, and 59 per cent was earnings foregone per student in higher education.

Shultz's estimates also highlighted that the stock of education, embodied in labour force, increased 8.5 times from 1900 to 1956, whereas the stock of reproducible physical capital rose only 4.5 times its base level in 1900, both being measured in 1956 dollar prices. These results suggested capital elasticity of educational investment to be approximately 1.9. In value terms, stock of education accounted for 2.2 per cent of the stock of physical capital in 1900. More rapid growth of educational investment than the growth of investment in physical capital raised the stock of human capital to approximately 42 per cent of total stock of physical capital in 1956.

Shultz measured factor costs of education in assessing the economic value of education and did not take into account the costs of such activities which do not directly contribute and serve educational purposes. He defined factor cost of education as the costs paid by the student and his family and the costs paid by others such as state or federal government, voluntary organisations, etc. Shultz classified Total Resource Costs into : (i) School costs or costs incurred by society on teachers' salaries, supplies, interest and depreciation on capital ; (ii) opportunity costs of students such as income foregone during

school attendance and (iii) Incidental school-related costs incurred by individuals, for example, on the purchase of books and on travel. Private Resource Costs are classified into direct costs consisting of tuition costs, supplies and additional living expenses ; opportunity costs incurred by individuals and lastly, incidental school-related costs.

Machlup (1962) tried to measure the cost of all types of education in the U.S economy which include (i) Education in the home i.e. earnings foregone by mothers staying at home to educate their pre-school children, (ii) Training on the job, (iii) Education in the Church (iv) Education in the Armed Services and (v) Cost of formal education, special schools and other federal expenditures. He estimated the total costs of education industry in the United States in 1958 at 60,000 million dollars or 14 per cent of GNP while formal education accounted for 46,000 million dollars. According to Machlup, education is one of the constituents of knowledge industry and the total cost of knowledge production in the United States was 29 per cent of GNP in 1958.

Institute of Applied Manpower Research (IAMR) (1964, 1975) carried out a survey of costs of Engineering colleges and Polytechnics in India. The study found considerable variations in per pupil cost between the three different types of Engineering college, namely, (1) Indian Institute of Technology (IITs), (2) Regional Engineering colleges and (3) All other colleges of Engineering and Technology. Current expenditure per

pupil averaged Rs. 2263 a year in the IITs, Rs. 1200 in Regional colleges and Rs. 483 in other colleges. In Polytechnics, the study found that current expenditure per pupil averaged Rs. 372 a year. In 1975, IAMR carried out a study of "Pattern of expenditure and per student cost in the Indian Institute of Technology". This study dealt with size-cost relationship and the cost of education of the IIT student at the undergraduate and the post graduate level were estimated. Returns to scale are also measured in terms of cost-elasticity. The important findings are as follows :

- (i) Optimal enrolments worked out in almost all cases were higher than the actual enrolments.
- (ii) Fixed costs of undergraduate training are higher than fixed cost of post-graduate classes.
- (iii) Linear average cost curves reveal economies of scale for both under-graduate and post-graduate courses.

Panchamukhi (1965) estimated that the total costs of University and Professional education in India over the decade 1950-51 to 1959-60 came to about 700 crores of rupees. Over three-fifths of these costs were private mainly earnings foregone by the student. He calculated educational expenditure in three sectors : (i) Education in school and Colleges, (ii) Training on the job, and (iii) Training in the armed forces. The estimates of cost of formal education included teaching and non-teaching staff salaries, expenditure on equipment and chemicals, library, sports, and indirect expenditure such as inspection, direction,

building, furniture, scholarship and additional expenditure in terms of expenditure on books, transport and other stationery required by students. Besides the costs of formal education, cost of on-the-job training and training in the armed forces were also calculated to give total of the resources going into the formation of educational capital in India. The main findings are:

- (1) Physical investments in India have been increasing at a higher rate of 13.4 per cent per years as compared with educational investments;
- (2) India had invested nearly 5 to 6 per cent of its national income in education as against 11.8 per cent and 12.9 per cent of GNP in USA for 1956 and 1958 which was nearly double of the proportion for India.

Education Commission (1964-66) studied the growth of educational expenditure in India in the post Independence period from 1950 to 1965 and also estimated the pattern of cost per student at each level of education in the First Three Plans. According to the Commission, the total educational expenditure increased from Rs 1,144 million in 1950-51 to Rs 6,000 million in 1965-66 indicating a total increase of 424 per cent in a period of 15 years. The total educational expenditure per capita rose from Rs 3.2 at the beginning of the First Plan to Rs 12.1 at the end of the Third Plan. The share of educational expenditure in the national income had rose from 1.2 per cent in 1951 to 2.9 per cent at the end of the Third Plan. The Commission further noted that the rate of growth of educational expenditure in the first

three plans (11.7 per cent) was 2.2 times the rate of growth of National Income at current prices (5.4 per cent). It was 1.6 times the rate of growth of enrolment and 1.7 times the rate of growth in the number of teachers.

During the first Three Plans, the overall cost per student (direct expenditure only) has increased from Rs 37 per student in 1950-51 to Rs 64 per student in 1965-66 in current prices or by 73 per cent. However, the Commission felt that, "If allowance is made for the rise in the cost of living (which is about 65 per cent), the rise in real terms is negligible". Other findings of the Commission are:

- i) The cost per pupil did not show appreciable increase except in professional colleges and vocational schools. If allowance is made for the rise in prices, there is actually a fall in expenditure in real terms.
- ii) At the pre-primary stage, the cost per pupil has remained almost stationary. It implied that in real terms, the investment per student has gone down greatly.
- iii) The cost per student had gone up by 50 per cent at the lower primary stage. But this also implied a fall in real terms. The non-teacher costs per pupil have actually fallen at constant prices.
- iv) Expenditure per student in colleges of arts and science showed some increase in current prices, but a fall in real terms.

The Commission conducted a separate study of unit costs of higher education in India and the results of these studies showed that there is wide variation in the unit costs of higher education. While the variation is due to differences in the methodology and the scope of these studies, a good deal of the variation was due to the differences in the level of facilities and services provided in these institutions which in turn depend on such variable factors like salaries of teachers, student-teacher ratio, library, laboratories and other facilities provided, besides the capital costs. From these exercises the following characteristics of unit costs of higher education in India is noted:

- i) Cost per student at the undergraduate stages were similar in arts and science faculties.
- ii) Cost per student for post graduate arts degrees were twice that of first art degree costs,
- iii) Costs per student for post graduate science degrees were five times that of first science degree costs.

Vaizey (1958) had made a study of British educational expenditure. He defined educational expenditure as current plus capital expenditure at current prices exclusive of transfer payment such as student grants. His calculation showed that the ratio of educational expenditure to National Income at factor cost rose dramatically from 3.4 in 1952 to 5.4 p.c in 1965. Even after the deduction of all outlays on non-educational functions which happens to be discharged by schools such as catering,

boarding and health services from educational expenditure, the ratio is still over 5 per cent.

Vaizey and Sheehan (1968) examined the effect of changes in price levels on educational expenditure in Britain for the period 1920-65. This pioneering study involved the calculation of separate price indices for each input in the educational system. The study noted changes in the value of real resources devoted to education as well as changes in the cost structure, for example the fall in teachers' salaries, from 70 per cent of all expenditure in 1921 to less than 50 per cent in 1950.

Hallak (1969) made an examination of some critical problems in the concept, the estimates, the analysis, and the use of unit costs in educational planning. The study included useful illustrative data with the analysis of the experience of France and Tanzania in testing the financial feasibility of educational plans. According to Hallak, cost of education included expenditure on public and private education, and opportunity costs. Educational cost analysis has two aspects- overall analysis, designed to define the place of education in the national economic context and the detailed analysis which defined total and unit costs by type and level of education and by purpose of expenditure. The study also dealt with methods of estimating total expenditure and unit costs. The educational expenditure is classified as follows:

Recurrent expenditure

1) For instruction:

Salaries and allowances of teaching and non-teaching staff, school textbooks, other instructional expenditure materials and supplies, etc.

2) Other recurrent expenditure:

scholarships and grants, welfare services, canteens, transport, boarding, sport; Maintenance of buildings and equipment; Operations of buildings (fuel, light, water and gas); others.

Capital expenditure

1) Purchase and development of land.

2) School building, classrooms, laboratories and fixed equipment.

3) Welfare services, residence halls, etc.

4) Others. And lastly,

Debt Services

Furthermore, Hallak distinguished the following unit cost of education - cost per graduate, cost by level of education attained, unit cost per pupil, cost per average daily attendance, capital cost per place, average cost per class and average recurrent cost per teacher.

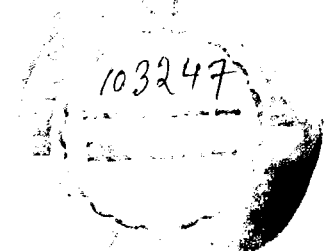
B.Dey (1969) in his paper 'Costing of Education' tried to show the extent to which costs concepts relevant to manufacturing industries can be applied to educational industry. He broadly classified the education costs into four categories: (i) direct expenditure, (ii) expenditure for meals and tiffins, (iii) expenditure of students' health service, and (iv) expenditure on training of teachers. He also gave empirical contents to his cost classification with the help of the data collected through a pilot enquiry of public health and educational services in Madhyagram, an urbanised village in the district of Twenty-four Parganas, West Bengal, for 1963. Direct cost per student in the sample secondary schools was estimated at Rs 92.98 per year and the total annual per secondary students excluding guardian's share of books, stationery, meals and cost of administration and inspection was calculated at Rs 106.86 in the year.

K.R.Shah (1969) classified private costs of education into Tuition and Non-tuition costs and he found that non-tuition costs constitute an important components of private costs of education and students fees were not considered as a burden by the relatively affluent parents. The important items of non-tuition costs were Books, Stationery, Private tuition, Transport and Refreshment and he observed that students belonging to low income group largely spend on books and stationery accounting for 85 per cent of the total non-tuition costs. On the other hand, for the high income group, the most important item of non-tuition cost was private tuition and this accounted for 61 per cent of the total non-tuition cost.

In another paper 'Expenditure on Professional School Education in India, Shah (1969) surveyed trends in investment expenditure in professional education during the first two Five Year Plans. His investigation revealed that there was comparatively a slower shift in secondary education from general to vocational education. In this paper, he also examined the progress of direct expenditure on education at constant prices. He concluded from his exercise that educational expenditure at constant prices increased only 131.4 per cent as against 209.2 per cent at current prices during the decade and expenditure per pupil in professional schools increased by 8.2 per cent in constant prices and 44.6 per cent in current prices during 1950-51 to 1960-61.

Rudder Datt (1969, 1988) tried to work out the unit cost of education of Haryana colleges in the year 1965-66. In this study he made a clear distinction between cost of creation of seat and cost of operating it. The important factors affecting the variations of unit cost were - age of the college, enrolment, average pay of teacher and ratio of non-teacher cost to total costs. The findings of the study are:

- 1) Unit cost of education defined in terms of per student cost for Haryana colleges was Rs 311 to 337 for the period under consideration;
- 2) The unit cost of education was the highest in the case of state colleges ranging from to Rs 403 to Rs 424 per student;
- 3) Private women colleges had the lowest unit cost ranging from Rs 252 to Rs 268 per student.



Again, Datt (1988) made a comparative study of unit costs in the School of Correspondence courses and colleges affiliated to Delhi University. The study revealed that in the conventional education systems, not only the unit costs but also state subsidy were substantially higher than the distance education systems. The data showed that for the year 1984-85, the average cost per student in the colleges under study was as high as Rs 3,516 while the average fee charged was as low as Rs 257. The element of state subsidy was Rs 3,259 per student. In relative terms, **fee** component from the cost was merely 7.3 per cent whereas the share of the state support accounted for 92.7 per cent.

As against it, the data relating to the School of Correspondence Courses showed a declining trend of cost per student as enrolment showed an upward trend. Average cost per student declined from Rs 628 with enrolment of 9,822 students in 1982-83 to Rs 552 with student enrolment rising to 18,520 students in 1984-85. Fee income as a proportion of costs was as high as 42 per cent in the School of Correspondence Course.

Blaug and Woodhall (1967) in their study of secondary school costs in the United Kingdom showed that between 1950-51 and 1963-64 per administrative staff and maintenance costs rose 46 per cent while per student teacher costs rose only 27 per cent, all measured in constant prices. Per student capital costs also rose more than teacher cost while equipment and furniture rose by 35 per cent and building by 35 per cent.

Kulkarni (1969) studied the unit cost of education in commerce college in Bombay. His findings are:

- i) Unit cost at current prices had increased from Rs 316 to Rs 453 during 1962 and also the pupil teacher ratio went down from 33:1 to 25:1;
- ii) Teacher's salaries accounted for 40% to 50% of the total cost.

Blaug, et al., (1969) estimated costs of education in India for the year 1960-61 and 1965-66. They made calculation for social costs and private costs separately. Social costs comprised all current expenditure on educational institutions, costs of inspection, the imputed rental value of educational capital, private expenditures on book and earnings foregone. Private costs include fees minus scholarship, as well as private expenditure on books and earning foregone. The data from the Education Commission (1964-76) and the I.A.M.R studies together with official educational statistics were used to estimate the total cost of education at each level and the cost per student. The imputed rent per pupil on educational capital was estimated by calculating the current replacement cost of all buildings and equipment and amortizing at a constant rate of interest. The average length of life was assumed to be forty years. The earning foregone during education were directly estimated from the age - earning profiles available in India. They also showed that the earning foregone of even six-year olds had some significance as they helped to explain the high dropout rates in the early years of primary school. The study provides four estimates of direct social cost of education in India, namely, (i) Social costs of

educating successful candidates, (ii) Social costs of education assuming average levels of wastage and stagnation; (iii) private costs of educating successful students; and (iv) Private costs of education assuming average levels of wastage and stagnation.

James Maynard (1971) found out that difference in per student cost was due to the variation in the size of the institutions. Important findings of his study are:

- (1) Long run cost function of Institutions of Higher Learning (I.H.L) was traditionally U-shaped;
- (2) Parabola was superior to a linear function for explaining variations in per student costs in higher education;
- (3) The size of the institutions was a dominant variable in explaining variations in cost per student among similar students;
- (4) Per student cost declined over the range of 500 to 5363 for Full Time Equivalence students.

Bottomly (1972) had done a study of Bradford University under the auspices of Organisation for Economic Co-operation and Development. In this study, economic, capital and teaching costs were calculated by departments and courses and he found that increase in class size reduced the cost per student. The important findings of the study are:

- (1) The total economic cost per student varied between \$ 2500 and \$ 4000 for laboratory-based course and between approximately \$ 1650 to \$ 2400 for classroom-based course.

This implied that laboratory based courses were more expensive than classroom-based courses. Capital and maintenance costs varied between 27% to 49% of the total cost for laboratory - based course and 31% to 39% of the total cost of classroom-based courses. Teaching costs vary between 34% to 55% of total costs for lab-based and 22% to 35% for classroom-based courses;

- (2) Substantial economies in staff costs per student can be gained by enrolment increase. Over the nine courses the staff cost index falls in between 52% and 82% of its present value when enrolment is approximately doubled i.e. to optimum level;
- (3) Economies could also be gained by changing the teaching structure of courses i.e. by increasing the teaching load on the staff by intensive and extensive use of teaching, accomodation, building and other technical and administrative staff;
- (4) In almost all the course unit cost defined in terms of total economic cost per student can be decreased by 5% to 13%;
- (5) A combined effect of an increase in enrolment to an optimum level together with a 50% increase in teaching load, while maintaining the existing cost structure would reduce the full academic staff cost per student by 46% to 65% of the total cost.

International Institute for Educational Planning (IIEP) (1972) had done twenty seven case studies which were undertaken in 1968 on a large scale research project on the uses of costs analysis in educational planning. The study concluded that cost analysis could serve the following purposes in educational planning:

- (1) costing and testing the economic feasibility of educational plans;
- (2) evaluating and improving the allocation of available educational resources;
- (3) comparing alternative ways of achieving the same objective in order to select the most efficient or economical;
- (4) determining both the short run and longer run cost implications of a particular project;
- (5) estimating the cost of alternative policies and educational reforms and innovations;
- (6) improving the efficiency of resource utilization;
- (7) checking the economic implications and feasibility of special policy decisions before they are made.

Coombs and Hallak (1972) took up a study on the cost of education at the international level for some of the developed and developing nations. The major objective of the study were to have cost analysis for assessing the feasibility of educational projects, to know the cost and consequences of introduction of educational reform, to draw up a programme of expenditure over the planning period and facilitates decision-making when several alternative possibility exist for the allocation of funds.

According to them, educational system has five elements: (i) objectives, (ii) Outputs, (iii) Benefits (iv) Internal process, and (v) Inputs. Coombs and Hallak emphasised the role of educational cost analysis within the framework of 'system analysis' in the following ways:

"Educational costs standing alone have little meaning. It is only when they are seen as a critical link between the inputs of an educational system and its objectives, outputs and benefits that they become a revealing indicator of how efficiently and effectively the system is functioning. And it is only with the aid of this larger perspective that cost analysis becomes a powerful tool for improving the performance and planning the future of any educational system" (Coombs and Hallak 1972, p.85)

Coombs and Hallak developed different ways of measuring and expressing educational costs such as (a) Resource cost vs money cost, (b) capital vs recurrent cost, (c) Unit cost per student and (d) factor costs of education. The factors affecting educational costs were classified into two- (i) external cost determinants that lie outside the educational system; and (ii) internal cost determinants which are closely allied to the technology adopted by the educational institutions, and to the policy employed regarding the payment, deployment and utilization of teachers. The external factors affecting educational costs are inflation, rising educational demand, factor costs of education, educational revenues and foreign aid.

They observed that a substantial part of the impressive rise in educational expenditure from 1950 to 1970 was not "real" reflecting the inflation of prices and wages. Apart from

inflation, the greatest cause of the sharp rise in overall educational expenditure was the explosive increase in demand for education. According to them there were four main factors underlying demand forces: (1) rapid increases in youth population; (2) a 'revolution of rising expectation' on the part of millions of families long deprived of educational opportunities and who now regarded education as the key to individual advancement; (3) widespread adoption of public policies aimed at democratizing educational opportunities, i.e. adoption of the goal of universal primary education in the developing countries and compulsory attendance into secondary education and encouragement to higher participation rate in post-secondary education in many industrialized countries; (4) the rapid expansion, upgrading and diversification of manpower requirement due to technological advances in the economy, emphasis of public policy on economic development and a clearer recognition of education's role in economic growth.

Some of the crucial findings of the study are:

- (1) Educational costs vary not only from one country to another but within one country from one system to another, and also within educational systems;
- (2) A unit cost of education shows a rising trend in the long run. Unit costs rise with each successive educational level; and scientific and technical education at any level is more costly than general education. Educational cost structures remain stable over time.

(3) Economies of scale are an important factor in improving efficiency. Cost per unit can be reduced by raising the enrolment to an optimum size. But this optimum size of enrolment will be different at different levels of education in different institutions.

Psacharopoulos (1972) in his study of return to education at the international level made a comparison of the ratio of total costs per student per year by education level for a group of developed and developing countries. The data collected by him revealed that in the developed countries (viz. USA, Great Britain, New Zealand) the ratio of total per pupil costs of secondary to primary education was 6.6 to 1 and that of higher to primary education was 17.6 to 1; while in less developed countries (viz, Malaysia, Ghana, South Korea, Kenya, Uganda, Nigeria and India) these relative costs were 11.9 and 87.9 to 1, respectively. In other words, taking the 87.9 figure, for the equivalent cost of educating one university student for a year, 88 primary school children could have a year of schooling. In many African countries, like Sierra Leone, Malawi, Kenya and Tanzania cost ratio per pupil between higher and primary education ranged as high as 283 to 1. Since in over half of the world's developing countries, the ratio of students in primary to students in higher education is above 100 to 1 (the ratio is less than 10 to 1 in developed countries), it follows that developing countries spend a large proportion of their educational budget on a very small proportion of their students enrolled in Universities and professional schools.

Pandit (1972) calculated the total cost of education in India including income foregone for 1965-66 at 1960-61 prices. His estimates revealed that whereas educational expenditure was only 3.4 per cent of national domestic product in 1950-51, it went up to 7.38 per cent in 1965-66. As against it, gross capital formation as a proportion of national domestic product rose from 13.1 per cent in 1950-51 to 17.93 per cent in 1965-66.

Becker (1975) in his study of the rate of return to investment in college and high school education^{and} classified costs of education into Private Costs and Social Costs. Private costs include direct expenditure on tuition fees, books and supplies, travel between home and school, and capital (e.g. typewriters) used by students in school works and foregone earnings of the students. Similarly, social costs have also two components: (i) current educational expenditure, capital used upon education and property taxes that would have been levied, if schools were not tax-exempt, and (ii) social opportunity cost which consists of the value of property tax foregone on the property owned by educational institutions and the earning foregone of capital used in education. The estimates of cost of education given by Becker can be summarised as follows:

- 1) Tuition payments (net) were \$112 per student in 1939 and \$242 per student in 1958. Books and supplies were 22.5 per cent of tuition, travel 23.9 per cent, and capital 7 per cent. Becker calculated the average outlay on books and supplies, etc. on

the basis of the survey conducted by the US Department of Health, Education and Welfare in the year 1952-53. Becker set the high school tuition as zero. He estimated the other direct costs of high school students- transportation, books, etc. by assuming that the ratio of these costs to expenditure per student equal one-half the observed ratio for college students.

- 2) The earning foregone of the students is estimated by assuming that college students earned about one-quarter of the amount earned by high school graduates of the same age and that high school students earned one-quarter of the estimated earning of elementary school graduates of the age, 14 to 17.
- 3) Current educational expenditure is estimated by subtracting non-educational expenditures from total educational expenditure that is, expenditure on extension, organized research and activities relating to department. The amount of tangible capital per school was estimated from an unpublished study by Robert Rude (Robert Rude 1954: Assets of Private Nonprofit Institutions in the United States, 1890-1940). Capital per student was obtained by dividing the amount per school by the number of students per school. Becker obtained the expenditure of high schools from the combined figures for high schools and elementary schools published by the US office of Education by using the formula $wX+(1-w)aX=Y$, where 'X' is expenditure in high schools, Y is the combined expenditure for high schools and elementary schools, 'w' is

the fraction of students in high schools and 'a' is the ratio of the expenditure per student in an elementary school to the one in high school.

- 4) Becker assumed the opportunity cost of capital to be 10 per cent of its value per year and by taking the implicit annual property tax on educational capital as 1.5 per cent of its value, he estimated the value of property tax foregone to be \$18 per student in 1939 and \$21 per student in 1949.

OECD Study group (1977) estimated the total resource cost of regular education in France, Japan and Great Britain for the year 1970. The study has taken a broader view of education, and also made an attempt to list out the various items of cost of education. The total resource cost has included total current expenditure, imputed rent and earnings foregone of the student. The total resource cost of regular education in France was calculated at \$ 9,607 million whereas the magnitude was \$ 11,667 million and \$ 6,829 million in Japan and Great Britain respectively. In France, total current expenditure accounted for about 49.38 per cent of the total resource cost of regular education while the figures for Japan and Great Britain were 54.02 per cent and 65.79 per cent respectively. Imputed rent constituted 5.04 per cent, 6.76 per cent and 5.15 per cent in France, Japan and Great Britain. Earning foregone was estimated at 45.58 per cent of the total resource cost in France; 39.21 per cent in Japan and 29.05 per cent in Great Britain. The share of total-resource cost of education as a proportion of Gross National Product (GNP) in France, Japan and Great Britain were estimated at 6.7 per cent, 5.7 and 5.5 per cent respectively.

The study group adopted an 'economic' definition of educational cost which takes account of the opportunity costs of all resources used up for regular education. This approach entailed estimation and imputation for the indirect cost elements, e.g. earnings foregone by student, imputed rent of land and buildings owned by educational institution. Estimates have been made for all these items in each country. Expenditure on food, board, welfare, recreation etc. were regarded as 'non-education' expenditure and these items were separately shown as "associated expenditure".

The OECD study Group classified the items of educational costs as follows:

Expenditure on Personnel

- (i) Salaries and wages of teaching and supporting teaching staff;
- (ii) Other emoluments of teaching staff;
- (iii) Salaries and wages of non-teaching staff
 - (a) Administration and ancillary staff directly concerned with educational activities;
 - (b) Maintenance, domestic, welfare staff, etc.
- (iv) Other emoluments of non-teaching staff.
- (v) Payments to students or trainees.

Other Current Expenditure

- (vi) Maintenance and repair of land and buildings, furniture and equipment;
- (vii) Expenditure on replaceable equipment and materials (eg. consumables such as exercise books);
- (viii) Fuel, water, light, heat, cleaning, etc.
- (ix) Administrative expenditure, other than personnel expenses;
- (x) Other current expenditure.

Associated expenditure:

- (xi) Transportation, clothing, catering and boarding expenditure;
- (xii) Transfer payments (Student aid);
- (xiii) Welfare expenditure (health, recreation, etc.)

Imputed costs

- (xiv) The earnings foregone by pupils and students;
- (xv) The imputed rent of educational buildings and equipment.

Lakdawala and Shah (1978) studied the cost of education for school and college education in Gujarat. The important findings of their study are :

- (1) Training in professional courses like, Engineering, Medicines and Education was costlier than that in Arts, Science, Commerce and Law. And Arts and Science courses were costlier than Commerce and Law.
- (2) The size-cost relationship evaluated by fitting a second degree curve for Arts, Arts and commerce colleges had yielded a U-Shaped cost curve indicating a tendency of the

average cost to decline with the increase in enrolment till it reaches the optimum size and after that it starts increasing.

(3) The average optimum size of enrolment was calculated 960 students for a college in Gujarat state.

(4) Size, age and pupil-teacher ratio are the three important determinants of cost of education.

This study has thrown light on a very important aspect of college education in Gujarat state. It stated that out of every 13 colleges of Arts, only two have an optimum enrolment. The situation is no better in Commerce and other colleges.

Sharma (1980) analysed the cost and efficiency of the University system in India. He has examined the cost of education in terms of operating and capital formation. The structure of operating costs include teaching inputs, student services, administration and supporting services and evaluation/examinations. The costs of capital formation consisted of expenditure on buildings, equipments, Library, and other items. The important finding of the study is that expenditure on administrative and supporting services accounted for more than the expenditure on teaching inputs. Also the comparison of unit costs had been done between general, professional, residential and affiliating universities. Again, an attempt had been made to study the possibilities of economies of scale in relation to enrolment. The findings are :

- (1) In 1976-77, an average of Rs. 3570 was spent per student by the universities as operating expenses to provide instruction. About Rs. 833 was spent on developing infrastructure of capital nature.
- (2) Unit operating costs of providing education in affiliating universities were higher than similar costs in residential type, which spent almost Rs. 754 per student less.
- (3) Unit operating costs in centrally financed universities were higher by Rs. 2052 per student compared with those in state financed universities, and this amount was little less than double of that spent by residential universities.
- (4) Unit costs of administrative and supporting services in affiliating type of universities were more than those of teaching inputs and student welfare put together. In the residential type, the unit cost of teaching inputs and student welfare were relatively higher.
- (5) Analysis of unit costs per student and size of enrolment suggested that there exist economies of scale in running universities. Regression analysis of the unit cost data for 39 universities in 1976-77 showed that in a given situation universities with an enrolment of 3100 students works at the opimum level and the unit operating cost is Rs. 1550 per student per annum. Universities could save a great deal of resources by operating at this level. As per these findings, the university system in India is working at an in-optimal level.

Sharma and Mirdula (1982) examined the pattern of resource allocation and calculated unit of education with reference to Hindu college, Delhi for the time period from 1973-74 to 1976-77. They observed that a good deal of public educational resources were invested on collegiate education in India. The present study examined how these resources were utilised. They also estimated the unit cost of providing graduate education by subjects and courses of studies. The following cost components were taken into account - salaries of teaching and non-teaching staff, cost of library services, cost of student services, laboratories expenses and cost of maintenance and repair. The important findings of the study are : (1) The salary of teaching staff accounted for almost two-third of the college budget. The salary of supporting teaching staff accounted for nearly 5% to 7% of the total budget and that of ministerials staff 4 to 5% of the total budget. In general, salary costs of teaching and non-teaching staff constituted between 70% to 80% of the total costs. (2) Nearly 10% of the total expenditure was spent on subsidies, namely for concession and scholarship. (3) The amount spent on laboratories and science contingencies was about 1% of the total budget. (4) Per student expenditure-recurring and non-recurring ranged between Rs. 1879 and Rs. 2448 during 1973-76. Total recurring expenditure varied between Rs. 1615 and Rs. 2248 and non-recurring expenditure between Rs. 216 and Rs. 57. (5) The item-wise cost analysis reveals that the college spent Rs. 1095 to Rs. 1541 per student on teacher's salaries. (6) The college spent nearly Rs. 32 per student annually in providing sport facilities.

(7) Nearly Rs. 40 per student per annum was spent on fee concession and between Rs. 143 and Rs. 192 on scholarships. (8) Per student non-recurring expenditure on buying books and library contingencies was between Rs. 22 to Rs. 46 and the college spent Rs. 31 to Rs. 52 per student in buying apparatus and equipment for science faculties. (9) The average per unit cost for graduating a student for all courses/subjects for three year duration was estimated at Rs. 5145 per student. However, due to failure and dropout, Rs. 952 per student was lost. The effective cost of producing a graduate has been estimated at Rs. 6097 per student.

Garg (1982) had done a study on the growth and structure of institutional and private costs of the University of Punjab and its affiliated colleges. Some of the important findings of the study are :

- (1) The level of institutional expenditure of the University showed a rising trend. Recurrent expenditure increased by 10.04 per cent between 1952-53 and 1974-75 and capital expenditure at the rate of 1.77 per cent per annum.
- (2) The application of parabolic and cubic equation revealed the presence or absence of economies of scale in a particular University teaching department. Sixteen department were found undersized and these departments could expand enrolment while six departments were oversized and the options were open to the university to regulate admission in these departments.

- (3) The estimates of private costs both for teaching department and affiliated colleges showed that the level of hostel expenses per hosteller in teaching departments was Rs. 2918 per sessions whereas for other costs it varied between Rs. 715 and Rs. 1151. The level of hostel expenses in private colleges was more as compared with Government colleges. The level was Rs. 2507 in private colleges and Rs. 2212 in government colleges per session.
- (4) The estimates of unit cost in affiliated colleges showed that recurrent costs in general education was Rs. 566.25 in 1974-75. The corresponding figures for recurrent costs in colleges of Education was Rs. 734.72, Home science Rs. 2780, Architecture Rs. 3260, Engineering Rs. 4163.50 and Medicines Rs. 12302. Recurrent costs of private college lower by Rs. 47.53 per cent of the government colleges and the variation was mainly due to the variation in salary components of recurrent costs. The level of salaries of staff in private colleges was less than half (43.88%) of the government colleges.

Chalam (1986) examined the finances, costs and productivity of higher education in Andhra Pradesh with the help of macro as well as micro data of the system. The main findings of the study are :

- (1) Educational expenditure in the state has grown much faster than the State Domestic Product (SDP). The proportion of SDP spent on education and higher education was less than 3 per cent and 1 per cent respectively in 1975-76, while for the country as whole, it was 3.5 per cent of the GNP.

- (2) Among different items of direct expenditure, salaries of teachers in the general and professional streams accounted for 63.0 per cent and 53.0 per cent of the total expenditure on higher education in 1975-76.
- (3) Out of the total expenditure on higher education only less than one-third (28.52 per cent) of the amount was devoted to professional education.
- (4) Regression analysis showed that the expenditure on scholarships and building explained 42 per cent of the variation in the indirect expenditure, while they explained only 28 per cent of the variation in constant prices.
- (5) The elasticity of total expenditure with respect to buildings and scholarships and also to the total indirect expenditure on higher education was less than one. This showed the apathy of the system towards the improvement in quality of higher education.
- (6) There were three main sources of fund for higher education in Andhra Pradesh, namely, (1) The state and Central government and their agencies, (2) Local bodies, and (3) Private contribution through endowments, fees, gifts, etc. While the share of private sector decreases, the role of government in funding higher education continue to increase. The elasticity of the government funds to the private sources is found to be 1.75 in the case of general education and 2.51 in the overall higher education, implying that one per cent increase in expenditure by private sources leads to more than one per cent increase in expenditure by government.

- (7) The calculation of unit costs indicated that unit costs are less in the government colleges in comparison with the private colleges. The institutional costs of science courses were found to be more than Arts, Commerce, Law and Engineering course in the university. The teaching staff salaries dominated the institutional cost by taking nearly 80 per cent of the total cost. The institutional cost of University colleges indicated that less than 50 per cent of the total institutional cost was devoted to the salaries of teaching staff. The pattern of institutional costs of professional courses indicated that pharmacy course cost more than Engineering and Medicine. Staff costs were higher than teaching staff costs in all the professional courses except in M.B.B.S. The institutional cost of post-graduate courses were nearly seven times higher than that of graduate courses.
- (8) The fees contribution of the student to the total cost constituted nearly 15 per cent in some degree colleges and less than 10 per cent of government cost in University colleges and Medical college, thus, the state subsidy to the institution stood at 85 to more than 90 per cent of the institutional/government costs.
- (9) The estimates of private costs showed that (i) The private cost of education in all the degree course were found to be two to three times higher than the unit institutional costs. But in the case of University colleges, the private cost was estimated to be less than the institutional cost. (ii) The

Private cost of students increased progressively with the increase in the parental income of the students. Students belonging to lower income group spent more proportion of their income on higher education than the higher income groups. (iii) The net private costs of scheduled castes was less than 50 per cent of the total private costs, while it was less than 40% in the case of backward class students.

Graham (1987) examined international education expenditure, public and private. The important findings of this analysis are :

(1) For the world as a whole, per capita public expenditure in 1978 was US \$146, or 5.6 per cent of world gross national product (GNP). The developed nations of Europe and the Americas spend significantly more than the developing nations of Asia and Africa. Per capita public expenditure in developed countries and developing countries were US\$366 and \$26 respectively.

(2) As a per cent of GNP, Haiti spent the least on education among all nations and the Bahamas spent the most. In absolute dollars amount, Haiti spent the least per capita, while Sweden spent the most.

(3) Per capita spending in OECD selected nations varied from a high of \$139 in Canada and \$107 in the United States to a low of \$9 in Italy, the Netherlands, and Sweden. Generally, consumers in countries with high private education spending devoted a larger fraction of their budget to education. Canadian consumers devoted the largest fraction to education and Swedish consumer the least. Among the European nations, Spain and the

United Kingdom reported the highest private consumption expenditure on education.

Tilak (1987, 1990, 1993, 1994) in his study on the rate of return to educational investment in Andhra Pradesh had estimated the costs of education. Costs of education consisted of two important components; private and institutional cost. Private cost was defined as that part of the investment in education which was incurred by the pupil or his parents/guardian or both and it included the following three elements: (a) tuition cost; (b) non-tuition or maintenance cost; and (c) foregone earnings. Institutional costs comprised of current costs and capital costs. The sum of private costs and institutional costs, net of transfers, made up of the total social costs of education.

This study concluded that foregone earnings formed an important items of educational costs and the institutional cost of education constituted a relatively small part of the total cost of education. Tilak (1990) had done a study of unit cost analysis of higher education in India based on the data available in 1975-76. The estimates of unit costs referred to direct public expenditure on higher education in India including fees paid by pupils. The direct expenditure on education consists of expenditure on three major heads: (a) Salaries of the teaching staff, (b) Salaries of other staff, and (c) Expenditure on equipment, other appliances and other items. The study covered all the states and union territories of Indian Union. In this study, higher education implied post-graduate, Degree and

undergraduate studies in General education, Professional education and other education. Unit cost analysis was separately done for general education, professional education and other higher education. The important findings of the study are:

- (i) There were wide disparities in the unit costs of education between different states and union territories;
- (ii) Large disparities existed in the unit costs of different types of higher education-general, professional and other types;
- (iii) Similarly, disparities were also found in the component-wise unit costs among different states/union territories as well as between types of education;
- (iv) The regression analysis showed that size of the institution was not a dominant variable in explaining differences in unit cost while student-teacher ratio and average salary of teacher were the significant variables.

In another study, Tilak (1993) pointed out that the expenditure on higher education in India increased from Rs 172 million in 1950-51 to Rs 16.5 billion by 1983-84, yielding an annual rate of 14.8 per cent in current prices. But, in real terms, expenditure on higher education increased only by 11 times during this period. The share of higher education in GNP had improved from 0.19 per cent in 1950-51 to 0.89 per cent in 1983-84. The estimate of unit cost of higher education, as given by Tilak, increased barely 4.3 times in current prices, while the real expenditure per student has registered a negative growth rates.

Again, Tilak (1994) examined the experience of some major Asian nations in their efforts to develop the educational sector. He gave a broad overview of the growth of educational expenditure in Asia. The analysis revealed that public expenditure on education has increased 32 times in current prices in 25 years between 1965 and 1990. The rate of growth in Asia is the highest among the world regions. As a proportion of GNP, total expenditure on education increased from 3.4 per cent in 1965 to more than 4 per cent in 1990. In 1990, Asia invested about \$ 70 per capita on education which was the second lowest among the world, being higher than only Africa. Among the Asian countries, the rates of growth in South Asian countries were relatively low, the lowest being 2.2 per cent in Sri Lanka, followed by 3.9 per cent in India.

Mingat and Tan (1985) in a study of the distribution of public educational expenditure revealed that in developing countries as a whole, six per cent of students attaining higher education received almost 40 per cent of the resources. In Africa less than 2 per cent of the student who go to University received over 35 per cent of the public expenditure on education. In Latin America, 12 per cent of student in higher education received 42 per cent of the educational resources.

Agarwal (1988) studied unit costs of imparting entrepreneurial development training programme through conventional and correspondence education by two different Institutions. The Institutions are: Small Industry Service

Institute (SISI), Karnal, Haryana where education/training was provided through regular classroom lectures and All India Manufacturers' Organisation (AIMO) New Delhi where education/training was provided through correspondence services. The estimates of Unit costs in the two Institutions revealed that unit cost at AIMO was higher than that of SISI by Rs 980, i.e. 39 per cent. The variation in the unit costs may be attributed to significant differences in terms of their capacity utilisation. There was under-utilisation of infrastructure facilities at AIMO which was as high as 60 per cent and it was concluded that the under utilisation of the facilities at AIMO was responsible for a higher unit cost at this Institute.

The study, however concluded that the cost advantage of the distance education over the conventional system cannot be generalised for various reasons like differences in the utilisation of teaching facilities which vary from institution to institution. The study also suggested that there is need for a detailed examination of the cost aspects of the professional courses that are provided through correspondence method.

Shri Prakash (1977, 1996) had made a study of unit cost of education in India. In the book, "Educational System of India" he analysed unit costs of all levels and types of education in India between 1951 and 1964. According to the study, the total average unit cost of all levels and types of education taken together increased from Rs 50 in 1951 to Rs 67 in 1964, measured at constant 1960-61 prices and the growth rate being 34 per cent.

The average direct cost went up from Rs 40 to Rs 52 during the same period, its growth rate being 30 per cent. The costs per pupil of pre-primary schools, middle schools and colleges of technical and professional education declined substantially whereas the unit costs of all other institutions increased during the same period. A comparison of unit costs of different institutions revealed the following features:

- (i) Unit cost per student per year increased from primary to middle and from middle to high/higher secondary schools. The cost per student in pre-primary school was much greater than that for primary and middle schools.
- (ii) A place in the colleges of professional education costs a little more than twice as much as a place in colleges for general education.
- (iii) The unit costs per student in universities were much less than the unit costs in colleges for general education.

Again, Prakash (1996) studied unit cost of collegiate education in Punjab and unit cost of elementary education in India. The analysis of unit cost of college education in Punjab revealed that cost of specialised instruction in education, science and commerce far exceeded the unit cost of arts and humanities courses. Education in science at the college level was the costliest. The study also revealed that unit cost of education was higher in public than private sector. Furthermore, the exercise highlighted the following characteristics of unit cost of education in India. (i) inverse relation between unit costs and enrolment size, (ii) direct relation between costs,

quality of education service and number and nature of courses serviced, (iii) variation of optimum unit cost with size optima, (iv) domination of unit costs by recurring unit costs and domination of unit recurring costs by salary cost, and (v) approximation of overall and item-wise unit costs by U-shaped curves.

Prakash and Chowdhury (1994) analysed the structure and growth of public expenditure on education in India during 1951-87. The study focused on three main issues, namely, the growth of public expenditure on education, determinants of public expenditure, and educational production and costs functions. The findings of the study are:

- 1) The growth of educational expenditure gathers momentum as the educational system moves from lower to higher stages of development and educational expenditure grows more rapidly than general expenditure and income.
- 2) Analysis of educational expenditure, both public and private indicates that nominal and real expenditure has increased more rapid than population, enrolment and nominal and real Net National Product. Private educational expenditure has increased at a lower rate than public educational expenditure. Education is treated as a superior good both by society and individuals reflecting investment rather than consumption components of education.
- 3) Educational deflators rise more rapidly than general price deflator. Also educational price deflators are consistently higher than implicit Net National Product deflators.

- 4) The analysis of the determinants of public and private expenditure on education shows that income is the significant determinant of expenditure on education and that education is found to be a superior good both at social and private level.
- 5) The analysis of production and cost function of education indicates that education production function operate under the law of increasing returns to scale. The total cost curve approximate second degree parabola and the production of education has operated under increasing costs. The average cost curve is U-shaped with optimal enrolment at 3.91 crores.

Sharma (1993) examined the functioning of two non-viable colleges namely, Government College, Daman, and Navyug Science College, Surat both affiliated to South Gujarat University, Surat. He studied how efficiently resources are allocated and utilized in these two colleges and also estimated the unit costs of providing graduate education in these colleges. The study revealed that the unit cost per student in government colleges was higher by 2.71 times in comparison with the private college. The reason for higher unit cost in the government college was attributed to three factors namely, lower student-teacher ratio, small size of enrolment and higher average salary of teachers. Furthermore, the pattern of expenditure analysis revealed that almost all the funds available with non-viable colleges were spent on the salary of teaching and non-teaching staff and a very small amount was left for library, laboratories and other teaching aids. This pattern indicated that the quantity and quality of the academic infrastructure in these colleges were

very poor and various academic and co-curricular activities were not allocated adequate funds.

The unit cost for the three year graduate programme was estimated at Rs 40,829 for government college and the effective cost for producing a graduate was worked out at Rs 66,880. In private college, the unit cost for the three-year graduate programme was Rs 15835 and per unit effective cost was Rs 19341.

Todaro (1993) mentioned that developing countries have invested huge sum of public resources in education. The main reasons for this phenomenon are:

- (i) Literate farmers with at least a primary education are thought to be more productive and more responsive to new agricultural technologies than illiterate farmers;
- (ii) Specially trained craftsmen and mechanics who can read and write are assumed to be better able to keep up to date with changing products and materials;
- (iii) Secondary school graduates are needed to perform technical and administrative functions in growing public and private sector;
- (iv) University graduates with advanced training are needed to provide the professional and managerial expertise for a modernized public and private sector.

Besides, the people themselves, both rich and poor, have exerted tremendous political pressure for the expansion of school places in developing countries. Parents also realized that in the

absence of skilled manpower, the more schooling and certificates their children can accumulate, the better will be their chances of getting and well-paid jobs. For the poor, more years of schooling have been perceived as the only avenue of hope for their children to escape from poverty. As a result of these forces which operate on both the demand and supply side, there has been a tremendous acceleration in developing countries public expenditure on education during the last three decades. Both the proportion of national income and of national budgets spent on education have increased rapidly. In Asia, total public expenditures tripled during the 1960s and 1970s. In Africa and Latin America, public educational expenditure more than doubled. In fact, the increase in public expenditure on education in the 1960s and 1970s exceeded increases in any other sector of the economy. By the 1980s, educational budgets in many Third World Nations were absorbing 15 to 30 per cent of total government recurrent expenditure. Todaro further observed that while there was a sizeable expenditure in terms of overall budget, developing nations nevertheless were spending only \$27 per capita on public education as opposed to \$428 per capita spent in the developed countries.

Salim (1993, 1996) studied private costs and institutional costs of higher education in Kerala. In assessing private costs of education, he considered only direct private costs which is again divided into two groups: academic and incidental. Academic costs showed the expenditure which was directly related to instruction, whereas the costs which were not directly related to

instruction are referred to as incidental costs. The major components of academic costs were pre-admission cost, fees given to the college, private tuition fee, books, stationery, project/thesis works, study tours and other instructional costs. Incidental costs consisted of subscriptions, travel costs, hostel expenses, clothing, entertainment, donations and others. The study is based on the findings of a field survey of students of two Engineering colleges and two Arts and Science colleges under the University of Kerala. The study found that the actual cost per student in technical education was only slightly higher at the degree level and substantially lower at the post-graduate level than that of general education. The study also indicated that the facilities of higher education were being appropriated mostly by high income and occupations groups and these groups spend considerably higher amounts than low income and occupation groups. The estimates of institutional costs also reveals the following findings:

- 1) It was much more expensive for institutions/government to create and maintain a seat of engineering education than to do the same in general education.
- 2) Teaching cost occupied the most important components of recurring costs.
- 3) The colleges spent a small proportion on library and games and sports.
- 4) Capital costs constituted a significant part of the institutional cost. And building is the most important items of capital costs.

5) Only a small part of the institutional cost was covered by fees paid by the students; and a major part of the remaining amount was liberally subsidised by the government. The extent of subsidisation was about four times higher in education for engineering colleges than that of general education.

Baldev, et al (1994) had done a survey on school education in Mizoram and attempted to estimate per student expenditure with the help of a sample of 72 schools belonging to urban and rural areas in Lunglei district. The survey found that per pupil expenditure was the highest in the Government Middle School followed by Primary Schools. In the government aided middle schools and the government high school, the expenditure was equal. In the government aided high schools, however, the per pupil expenditure was marginally higher than that in government high schools.

Lalliani (1990) studied the growth of primary education in Mizoram during the post-Independence period. She analysed the growth of enrolment, expenditure and other infrastructural facilities at the primary level in Mizoram. The important findings relating to the pattern of educational expenditure for primary education may be given as follows:

(i) Public expenditure on primary education increased from 34.5 per cent in 1953-54 to 50.7 per cent in 1971-72 but gradually decreased over the years. In 1985-86, the percentage expenditure on primary education came down to 32.2 per cent.

- (ii) Ratio of plan outlay on primary education to total educational outlay showed a declining trend. From 36 per cent allocated for primary education in the Fifth plan (1975-80), the allocation came down drastically to 12 per cent in the seventh plan (1985-90).
- (iii) The proportion of expenditure on teachers' salaries increased from 79.5 per cent in 1977-73 to 95.7 per cent in 1982-83.
- (iv) The annual non-teacher cost per pupil was Rs 75 in 1986-87.
- (v) The cost of physical formation like buildings constituted just 1 per cent in 1986-87

The study revealed that infrastructural facilities which are crucial determinant for qualitative improvement of primary education were extremely limited and these would have adverse effects on the quality of primary education in Mizoram.

National Council of Applied Economic Research (1995) conducted a survey relating to private expenditure on elementary education in India covering 15 states and union territories and concluded that lack of finance is the most important reason for non-enrolment and drop-out of children throughout the country despite the fact that the government and other public bodies are bearing a large share of educational costs in the form of capital investment in land, buildings, other infrastructure and various subsidies on tuition fees, books and school dresses. The main findings of private expenditure pattern on elementary education are:

- (1) The estimates of private expenditure on elementary education per student per year showed wide variations across states ranging from a low of Rs 290 in Bihar to as high as Rs 1029 in Delhi. Regional variations in prices explained only a small proportion of this difference in expenditure and a complexity of economics and social factors are behind such wide variation.
- (2) In Assam and West Bengal high cost of education went together with high non-enrollment and drop out whereas in some states like Bihar, Madhya Pradesh, Orissa and Rajasthan despite low private cost of education, non-enrollment and dropout remained high.
- (3) Private expenditure per student rises from low to high income groups implying a positive income elasticity and private expenditure was prohibitively high for low income groups in most of the states. Proportion of income spent on elementary education falls from low to high income groups.
- (5) Private expenditure when dis-aggregated into its components revealed that school uniforms, books and stationery absorbed the major part of the total expenditure.

REFERENCES

- Agrawal, P.D. "Unit Cost in Conventional and Distance Education System," in B.K. Koul, et al. (eds) **Studies in Distance Education**, AIU/IGNOU, New Delhi, 1988
- Baldev, Mahajan, et al. **Educational Administration in Mizoram** (Structures, Processes and Future Prospects), NIEPA, New Delhi, 1994
- Becker, Gary S. **Human Capital (A Theoretical and Empirical Analysis with Special Reference to Education)** 2nd Edition, NBER, New York, 1975.
- Bottomly, J.A. **Studies in Institutional Management in Higher Education- University of Bradford; Cost and Potential Economics**. O.E.C.D. Paris, 1972.
- Blaug, M and Woodhall, M. "Productivity Trends in British Secondary Education, 1950-63" In J. Hallak(ed) **Educational Costs and Productivity**, UNESCO, IIEP, Paris, 1967 (Mimeographed)
- Blaug, M. et al. **Causes of Graduate Unemployment in India**. The Penguin Press, London, 1969
- Chalam, K.S. **Finances Costs and Productivity of Higher Education**. Inter-India Publications, New Delhi, 1986.
- Coombs and Hallak, **Managing Educational Costs**, UNESCO: IIEP Oxford University Press, New York, 1972
- Datt, Rudder "Unit costs of Education- A case study of Haryana Colleges" in H.N. Pandit (ed) **Measurement of Cost Productivity and Efficiency of Education**, NCERT, New Delhi, 1969.
- Datt, Rudder, "Distance Education versus Traditional Higher Education A cost Comparison," in B.N. Koul (eds) **Studies in Distance Education**, AIU/IGNOU, New Delhi, 1988.
- Dey, B. "On Costing of Education," in H.N. Pandit (ed) **Measurement of Cost Productivity and Efficiency of Education**, NCERT, New Delhi, 1969.
- Government of India : **Education and National Development** (Report of the Education Commission, 196-66) NCERT, New Delhi, 1970
- Garg, V.P. Cost - Analysis of the University of Punjab, 1950-51 to 1974-75. **Indian Educational Review**, July 1982.

- Graham, J.W. "International Educational Expenditures" in George Psacharopoulos (ed) **Economics of Education Research and Studies** Pergamon Press, Oxford, 1987.
- Hallak, J. **The Analysis of Educational Costs and Expenditure.** UNESCO: IIEP, Paris, 1969
- International Institute for Educational Planning (IIEP) **ducational Cost Analysis in Action: Case Studies for Planner, Vol-I, II & III.** UNESCO: IIEP, Paris 1972
- Institute of Applied Manpower Research (IAMR) **Cost study 1964** New Delhi, 1964.
- Institute of Applied Manpower Research **Pattern of Expenditure and Per student Cost in Indian Institute of Technology,** New Delhi, 1975.
- Kulkarni, G.B. "Cost of Education in Commerce Colleges of Bombay 1962-63 to 1966-67" in H.N. Pandit (ed) **Measurement of Cost Productivity and Efficiency of Education,** NCERT, New Delhi 1969
- Lakdawala & Shah. **Optimum Utilization of Educational Expenditure in Gujarat.** Monograph series-5. Sardar Patel Institute of Economic & Social Research, Ahmedabad. 1978
- Lalliani. **An Analytical study of the Primary Education in Mizoram during the Post-Independence period.** unpublished Ph.D. Thesis; Department of Education, NEHU, Shillong, 1990.
- Machlup F. **The Production and Distribution of Knowledge in United States,** Princeton University Press, New Jersey, 1962.
- Maynard, J. **Some Micro-economics of Higher Education: Economics of Scale,** University of Nebraska, Lincoln, Nebraska, 1971.
- Mingat, Alain and J.P. Tan. "On Equity in Education again; An International Comparision" **Journal of Human Resources,** 20 Vol. No.2 Spring/1985.
- National Council of Applied Economic Research (NCAER). **"Elementary Education in India" Margin, Volume 27, No. 2 Jan-Mar 1995.**
- Organisation for Economic Co-operation and Development (OECD) **Educational Expenditur in France, Japan and the United Kingdom,** OECD, Paris, 1977

- Panchamukhi, P.R. "Educational Capital in India" **Indian Economic Journal**, 12, Jan-March, 1965
- Pandit, H.N. "Cost and Financing of Education-Private and Social Participation" **Indian Educational Review**, July, 1972, Vol- 2, No.2
- Prakash, S. **Educational System of India, An Econometric Study**, Concept Publishing Company, New Delhi, 1977.
- Prakash, Shri and Chowdhury, Sumitra. **Expenditure on Education - Theory, Models and Growth**, NIEPA, New Delhi, 1994.
- Psacharopoulos, G. **The Return to Education: An International Comparison**, Elsevier, Amsterdam, 1972.
- Salim, A.Abdul, "Private Cost of Higher Education in Kerala; Socio-Economic Analysis" **Journal of Higher Education** Volume 16 No. 3 Summer, 1993.
- Salim, A.Abdul. "Institutional Cost of Higher Education- A case Study of Kerala" **Manpower Journal**, Vol. XXXII. No. I April- June 1996.
- Shah, K.R. "Private Costs of Elementary Education" in H.N. Pandit (ed) **Measurement of Cost Productivity and Efficiency of Education**, NCERT, New Delhi 1969.
- Shah, K.R. "Expenditure on Professional School Education in India, 1950-51 to 1960-61" in H.N. Pandit (ed) **Measurement of Cost Productivity and Efficiency of Education**, NCERT, New Delhi 1969.
- Sharma, G.D. **Institutional Costs of University Education- A study of costs and efficiency of Indian University system**, AIU, New Delhi, 1980
- Sharma, G.D. and Mridula, **Economics of College Education- A study of Hindu College**, Delhi, AIU, New Delhi, 1982.
- Sharma, Narayan Prasad. **Economics of College Education. A study of Non-Viable colleges**. Anmol Publications New Delhi 1993.
- Shultz, T.W., "Capital Formation by Education" **Journal of Political Economy**, Vol. 68, December 1960.
- Shultz, T.W., "Education and Economic Growth" in H.G. Richey (ed) **Social Forces influencing American Education**, Chicago, 1961.
- Shultz, T.W. **The Economic Value of Education**. Columbia University Press, New York, 1963.

- Tilak, J.B.G. **The Economics of Inequality in Education**, Sage Publication India Pvt. Ltd., New Delhi, 1987.
- Tilak, J.B.G. "Unit Cost Analysis of Higher Education in India" in Devendra Thakur (ed)., **Education and Manpower Planning** Deep & Deep Publication Pvt. Ltd, New Delhi 1993.
- Tilak, J.B.G. "Financing Higher Education in India" in Sumas Chitnis & Phillip G. Altbach, (eds) **Higher Education Reform in India** (Experience and Perspective), Sage Publication Pvt. Ltd., New Delhi, 1993.
- Tilak, J.B.G. **Education for Development in Asia**, Sage Publication Pvt. Ltd. New Delhi. 1994.
- Todaro, Michael. **Economic Development in the Third World** Orient Longman Limited, Hyderabad, 1993.
- Vaizey, J. **Costs of Education**, Allen & Unwin. London, 1958
- Vaizey, J. and Sheehan, J. **Resources for Education. An Economic Study of Education in the United Kingdom, 1920-1965** Allen & Unwin, London, 1968.

CHAPTER - IV

GROWTH OF PUBLIC EXPENDITURE ON EDUCATION

CHAPTER - IV

GROWTH OF PUBLIC EXPENDITURE ON EDUCATION

4:1 Introduction:

Education plays a crucial role in the socio-economic development of a nation. Expenditure on education is universally accepted as one of the most important components of investment expenditure that contributes both directly and indirectly to the growth of national and per capita income. Today, education has been assigned a high priority in the programmes of socio-economic development of a country throughout the world. Students enrolment, educational institutions and the amounts of educational expenditure both public and private have increased considerably in recent years all over the world. In short, it can be said that there is a worldwide explosion of demand for education in the post-Second World War period.

In this chapter attempt has been made to analyse the development of education in Mizoram in terms of enrolments, facilities and public expenditure in the post independence period of India. The educational profile of the state is analysed in the first part of the chapter and the growth trends of public expenditure on education between 1972-73 and 1993-94 is given later in more details.

4.2 EDUCATIONAL PROFILE OF THE STATE:

The genesis of the present system of education in Mizoram can be traced back to the arrival of two Christian Missioneries in 1894 who introduced alphabet based on Roman script and thus laid the foundation of education among the Mizos. These missioneries took up the task of educating the Mizo people. The early schools established by the missioneries were temporary and experimental in their functioning with no clear policy guidelines from the authority (Hluna, J.V.1992). However, in 1903 the government started giving grant-in-aid to schools maintained by the Missions and also provide other incentives to the students and this marked the beginning of a new chapter in the expansion of education in villages on a regular basis. At the end of 1903 there were 15 Lower Primary schools established in Mizoram. The first two English Middle Schools were established in 1909 at Aizawl and Serkawn. However, the opening of other Middle Schools followed much later in 1944. The first High School was started with community donation and collaborations in 1944 at Aizawl with only 56 students in Class VII.

In 1901 there were 771 literate persons comprising nearly one percent of the total population(0.93%) and 1941 census the total number of literate persons increased to 29,765 persons

i.e., 19.48 percent of the total population. At the beginning of 1948, there were 259 Primary Schools with total enrolment of 16,037 students, 22 Middle Schools with 2124 students and 2 High Schools with a total of 429 enrolments. Although the Mizos had made a steady progress in the field of education in this period, the cost incurred by the Government on education had never exceeded sixteen paise per head per year within the first forty years of British Administration (McCall, 1977).

The first College in Mizoram was established in 1959, twelve years after Independence. In the post-independence period, remarkable progress has been made in education with the help of the government as well as community participation. Mizoram has now enjoyed one of the highest literacy rates in the country, next only to Kerela.

4.2.1 Educational Structure of the State:

Mizoram follows the national pattern of 10+2+3 educational system as recommended by the Education Commission 1964-66. According to this pattern, the first ten years of education comprise three stages, namely, primary, middle and high school. Classes I to IV constitute the primary stage, followed by middle stage consisting of Classes V-VII. Classes VIII, IX and X form the high school stage or Secondary stage while classes XI and XII form the higher secondary stage and are attached to colleges and selected Higher Secondary Schools.

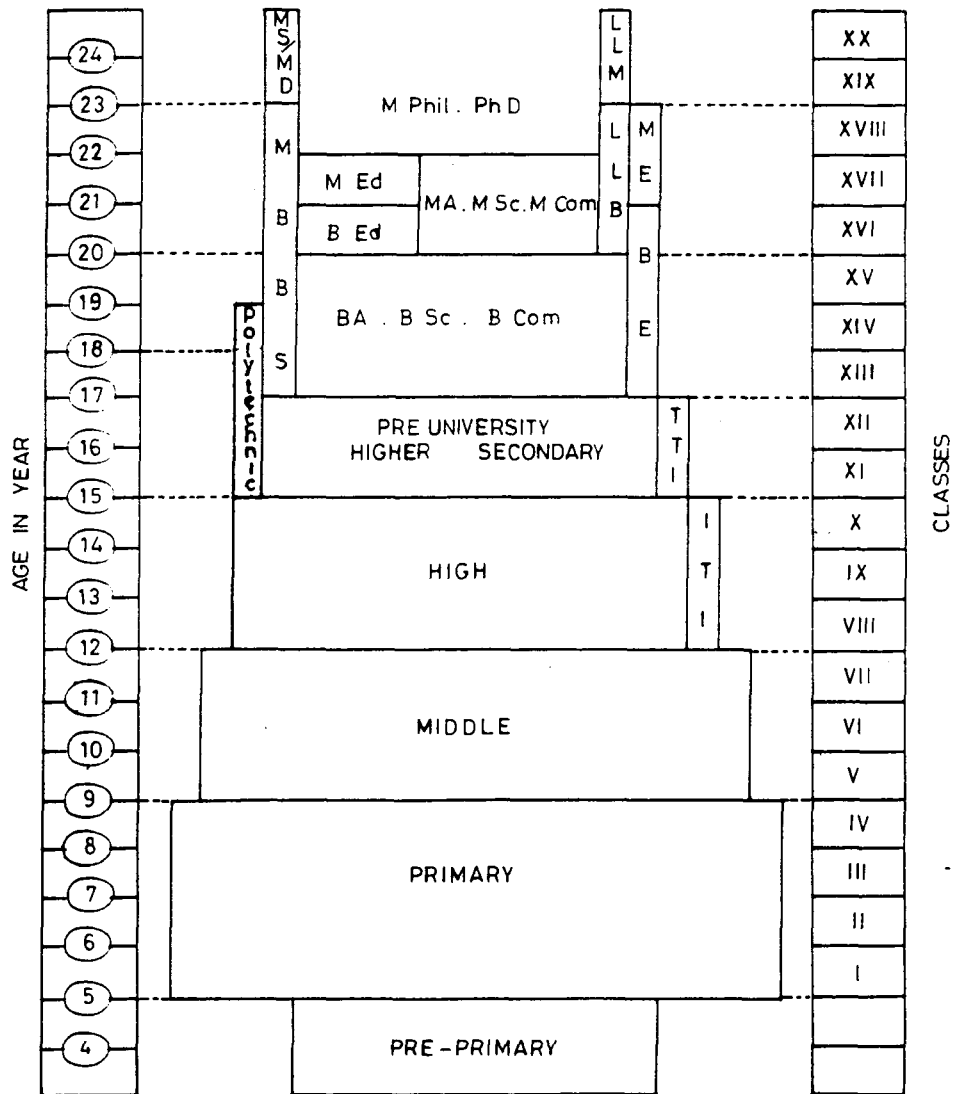
After the completion of higher secondary stages students are eligible for admission to the three years degree course leading to the Bachelor's degree in Arts, Science or Commerce. Mizoram has no university of its own. However, the North Eastern Hill University (NEHU) has its campus at Aizawl, the state capital of Mizoram. This campus offers post graduate courses in subjects like Economics, Education, English, Public Administration, Psychology, Forestry. Social Work and Mizo. The university also provides Bachelor of Education (B.Ed) and Bachelor of Law (LL.B) but the state has no facilities for professional educations such as Engineering, Medicine, Computer Sciences and others.

Students, after completion of the high school stage may also join the polytechnic which offers technical training of three years duration, or may join the Undergraduate Teachers' Training Institute which provides a two - year course in teaching for elementary school teachers. (Figure 4.1)

4.2.2. Types of Educational Institutions :

Educational Institutions are managed both by the Government and the private agencies. There are two main categories of Institutions, namely (1) Government schools/colleges which are directly managed by the State government , and (2) Non-government schools or colleges which are under private management with financial assistance from the government in the form of grant in aid. Non-government educational institutions may further be

MIZORAM EDUCATIONAL STRUCTURE



MS=MASTER OF SCIENCE, MD=DOCTOR OF MEDICINE, LL.M=MASTER OF LAW, ME=MASTER OF ENGINEERING, BE=BACHELOR OF ENGINEERING, TTI=TEACHERS' TRAINING INSTITUTE, ITI=INDUSTRIAL TRAINING INSTITUTE.

SOURCE : MAHAJAN, BALDEV, ET AL. (1994)

FIG 4.1

classified into Aided and Private. Aided schools and Colleges received grant-in-aid from the government while private institutions are purely managed by private agencies without any direct financial assistance from the government.

4.2.3. Administrative Organisation :

There are two Directorates to supervise and control the educational activities of the state. The Directorate of School Education, set up in 1973 looks after the following activities :

- Elementary Education;
- Secondary Education ;
- Higher Secondary education
- Teacher education, training and research;
- Adult education; and
- Science and Mathematics education.

For administrative convenience the whole state is divided into four Educational Districts and each district has been further divided into 7 Sub-Divisions and 25 educational circles. While the Director is responsible for the administration, supervision and co-ordination of educational activities at the directorate level, the District Education Officer (DEO) is responsible at the district level and Sub-Divisional Education Officer (SDEO) and Circle Education Officer (CEO) look after the sub-divisional and the educational circles level respectively.

The Directorate of Higher and Technical Education came into existence in 1989. It looks after:

University and Collegiate education;

Teacher education at the post graduate level;

Post-matric scholarship and research fellowship;

Hindi education;and

Technical education.

The Director is responsible for administration, supervision and co-ordination of all educational activities related to higher and technical education in the whole of Mizoram. He is assisted by a Joint Director and a Deputy Director. At the state level, the administrative machinery is headed by the Education Minister who is assisted by Secretary and other supporting staff. The Education Secretariat is responsible for controlling and directing the two directorate including Art & Culture Department.

4.2.4. Trends in Students Enrolment by levels :

Table 4.1 presents the data pertaining to the pattern of students enrolment at different levels of education in Mizoram for the period between 1951 and 1993. The enrolment at primary level rose, on an average, at the rate of 3.7 per cent per annum during 1951-1993. In absolute terms, it increased from 19,483 opupils in 1951 to 94,214 pupils in 1993. But, the percentage share of enrolment at the primary level decreased from 85 per cent of total enrolment in 1951 to 51 per cent in 1993.

The growth rates of enrolment at middle and secondary levels have been higher than those of primary level. The enrolment at the middle level rose at the rate of 6.7 per cent per annum and the secondary level at the rate of 8.9 per cent during 1951-1993. In 1951, the enrolment at middle level consisted of 12 per cent of the total enrolment which increased to 24.6 per cent in 1993. Similarly, the share of High school or secondary stage increased from 3.1 per cent to 15.2 per cent during the same period. The enrolment at College level grew at the rate of 13.1 per cent per annum over a period of 22 years i.e., from 1971-72 to 1993-94. The share of enrolment at the College level rose rapidly from 1.1 per cent in 1971-72 to 9 per cent of total enrolment in 1993-94.

The total enrolment at all levels registered a growth rate of 5 per cent per annum during 1951-1993. The decade-wise growth rates for all levels of education had fallen from 8.0 per cent in 1951-60 to 3.0 per cent during 1980-93. However, the growth of enrolment in absolute terms at primary, middle and secondary levels of education has been considerable, which may be attributed among others to demographic pressure. It has been observed that the growth rate of enrolment had been high at each successive level of education as compared to the preceding level.

Table 4.1 Trends in students enrolment by levels, 1951 to 1993
Mizoram.

Educational levels	Enrolment in					Annual growth rate (%)
	1951-52	1960-61	1971-72	1980-81	1993-94	
1.Primary stage	19483	39950	61269	74440	94214	3.7
2.Middle stage	2764	6657	19604	24161	44969	6.7
3.High school state	711	3010	8269	17225	27784	8.9
4.College stage	-	-	946	4584	16057	13.1
5.University stage	-	-	-	39	67	4.0
Grand Total	22958	49617	90088	120410	183091	5.0

All Levels

Year	Annual Growth Rate (%)
1. 1951-52 to 1960-61	8.0
2. 1960-61 to 1971-72	5.1
3. 1971-72 to 1980-81	2.9
4. 1980-81 to 1993-94	3.0
5. 1951-52 to 1993-94	5.0

- Sources :
1. Report on socio-economic Review 1979-80, Mizoram
 2. Statistical Handbook Mizoram, 1983,1992 & 1994
Deptt. of Economics and Statistics, Govt. of Mizoram
Aizawl.
 3. NEHU Mizoram Campus, Aizawl.

4.2.5 Growth of Educational Facilities :

Table 4.2 presents the growth of educational facilities by levels during 1951-52 to 1993-94. It shows the rates of increase in enrolment, schools and teachers at each level of education. At primary level, the number of teachers increased from 449 teachers in 1951-52 to 3844 teachers in 1993-94 registering a growth rate of 5.2 per cent annually over the period. Similarly, the total educational institutions at primary level rose from 354 schools in 1952 to 1061 schools in 1993-94, recording a growth rate of 2.7 per cent during this period.

Teachers and educational institutions at the middle level recorded a growth rate of 6.9 per cent and 4.4 per cent respectively during 1951 to 1993. The absolute number of teachers increased from 222 to 3738 and schools from 44 to 609 during the same period.

The rates of growth of teachers and educational institutions at the secondary level were 10.4 per cent and 10.1 per cent respectively. There were only 29 teachers at the high school level in 1951-52 and the number increased to 1839 teachers in 1993-94. The number of high school increased from 5 to 278 during this period.

At the college level, there were 37 college teachers in 1971-72 and this increased to 494 in 1993-94, registering annual growth rate of 20 per cent per annum. There was only one college in 1960-61 throughout Mizoram and by 1993-94, the number of

colleges in the state increased to 29.

Table 4.2 : Growth of Educational Facilities by level, 1951-52 to 1993-94. Mizoram

Educational level/year	1951-52	1960-61	1971-72	1980-81	1993-94	Annual Growth Rate (%)
Primary level						
1. Enrolment	19483	39950	61269	74440	94214	3.7
2. Teachers	449	756	1347	2403	3844	5.2
3. Schools	354	602	425	655	1061	2.7
Middle Level						
1. Enrolment	2764	6657	19604	24161	44969	6.7
2. Teachers	222	349	784	1678	3738	6.9
3. Schools	44	85	184	303	609	4.4
High School						
1. Enrolment	711	3010	8269	17225	27784	8.9
2. Teachers	29	94	431	860	1839	10.4
3. Schools	5	14	91	132	278	10.1
College						
1. Enrolment	-	-	946	4584	16057	13.1
2. Teachers	-	-	37	147	494	20.0
3. Institutions	-	1	3	10	29	10.8
University						
1. Enrolment	-	-	-	39	67	4.0
2. Teachers	-	-	-	6	23	10.9
3. Institution	-	-	-	1	1	-

All levels (Annual compound growth rate (in percentage))

Year	Enrolment	Teachers	Institutions
1951-52 to 1960-61	8.0	8.0	5.7
1960-61 to 1971-72	5.1	6.7	0.0
1971-72 to 1980-81	2.9	6.9	4.6
1980-81 to 1993-94	3.0	5.0	4.2
1951-52 to 1993-94	5.0	6.4	3.8

Source : Same as Table 4.1

From the foregoing analysis, the following broad conclusions emerge. First, the rate of growth of teachers at all levels of education under consideration was higher than the rate of increase in enrolment and institutions. Second, comparison of level-wise growth rates of educational facilities indicated a progressive increase with the successive level of education. Third, the decade-wise break up of rates of increase in enrolment, teachers and educational institutions has been gradually declining.

4.2.6 Levels of Literacy :

The literacy rate is considered as one of the most important indicators of educational development. In Mizoram, the literacy rate is relatively high as compared to other states. According to 1991 census, the literacy rate was 82.27 per cent, being the second highest in the country, with male and female literacy rate 84 and 78 per cent respectively. Comparative rates of literacy for the state and the country as a whole are given in Table 4.3

The literacy rate for the country as whole in 1991 was 52 per cent, with male and female literacy at 64 per cent and 39 per cent respectively. The table 4.3 revealed that the literacy rate in Mizoram had increased from 51 per cent in 1961 to 82 per cent in 1991 while at the national level, the literacy rate rose from 28 per cent to 52 per cent in the same period. The female literacy rate in the state is relatively high as compared to the national's average literacy rate-even higher than the male literacy rate for the country as a whole.

Table 4.3 : Literacy Rates-Mizoram and All-India (1961-1991)

Year	(Percent)					
	Mizoram			India		
	Male	Female	Total	Male	Female	Total
1961	62.25	40.34	51.24	40.40	15.34	28.31
1971	70.15	54.75	62.71	45.95	21.97	34.45
1981	79.37	68.60	74.26	56.37	29.75	43.56
1991*	84.06	78.09	82.27	64.1	39.3	52.2

* All-India literacy rate for 1991 excludes Jammu & Kashmir.

Note : The literacy rate for 1951, 1961 & 1971 relate to population aged 5 years and above whereas those for 1981 and 1991 relate to population aged 7 years and above.

Sources :

1. Census of India 1991, series-17, Mizoram (provisional)
2. Primary census Abstract, Mizoram collected from N.I.C Mizoram State Unit.
3. Govt. of India, Ministry of Finance Economic survey 1992-93 New Delhi.

4.2.7 District-wise analysis of Literacy rates :

The position of literacy rates in the three districts of the state are summarised in table 4.4. Among the districts, Aizawl ranked first in literacy. It had a total population of 4.78 lakhs of whom 3.44 lakhs were literate. In other words, the literacy rate of Aizawl District was 88.06 per cent. Lunglei district had the second highest literacy rate of 77.73 per cent which is, infact, lower by 4.5 per cent of the State's average rate while Chhimituipui district was lagging behind with 59 per cent literacy rate.

As indicated in Table 4.4 Tlangnuam development block had the highest literacy rate (94.61 per cent) while Chawngte development blocks in Chhimituipui District had literacy rate as low as 24.76 per cent. Twelve blocks out of twenty recorded literacy rate much higher than the rate of the State's level.

Zawlnuam and West Phaileng development blocks in Aizawl District had literacy rate lower than the State's average rate while two Development blocks in Lunglei District namely, West Bunghmun and Lungsen and all the four development blocks in Chhimituipui district were recorded to have literacy rate lower than the rate for the state as a whole. Thus block-wise analysis of literacy rate in the state indicated that ten out of twelve blocks in Aizawl District and two blocks in Lunglei District had literacy rate higher than the average rate of the state.

Table 4.4 District and Block-wise Literacy Rates (1991)

Sl.No.	Name of State/ District/Blocks	Total population	Literates	Per cent
	Mizoram	689756	461930	82.27
1.	Aizawl District	478465	343954	88.06
2.	Lunglei District	111415	70816	77.73
3.	Chhimituipui District	99876	47160	59.11
	Blocks			
	Aizawl District			
1.	Zawlnuam	30853	17057	69.43
2.	W.Phaileng	21591	9384	53.31
3.	Reiek	12128	8908	90.64
4.	Tlangnuam	170677	134473	94.61
5.	N.Thingdawl	44833	31182	86.24
6.	Darlawn	20983	14485	86.34
7.	Aibawk	14439	10756	93.55
8.	Serchhip	29993	21898	90.35
9.	Thingsulthliah	27095	20195	91.22
10.	Ngopa	23347	16237	85.39
11.	Khawzawl	50192	36394	89.52
12.	E.Lungdar	32344	22985	88.37
	Lunglei District			
13.	W.Bunghmun	15549	6929	55.60
14.	Lungsen	26496	11196	52.19
15.	Lunglei	48493	37183	92.15
16.	Hnahthial	20877	15508	92.08
	Chhimituipui District			
17.	Chawngte	24870	4994	24.76
18.	Lawngtlai	29330	13783	57.93
19.	Sangau	10746	6672	77.54
20.	Tuipang	34930	21711	79.78

Note : The literacy rates relate to population aged 7 years and above.

Source : Primary Census Abstract, 1991 N.I.C. Mizoram State Unit, Aizawl.

4.2.8 District-wise Number of Institutions, Enrolment and Teachers :

The district-wise comparison of the number of institutions, enrolment of students and the number of teachers in primary, middle, high school and college level are given in Table 4.5 The table reveals the following district-wise position :

a) At the primary stage, Aizawl district had the maximum number of school at 59 per cent, enrolment 67 per cent and teachers at 65 per cent while Chhimituipui district had the second highest number in institutions and enrolment while Lunglei had come next in case of total number of teachers. The teacher-student ratio at this stage was the highest in Chhimituipui district with 27 students per teacher and Lunglei had the lowest ratio at 21 students per teacher.

b) At the middle level, Aizawl District had the maximum share in respect of institutions, enrolment and teachers. Out of the total 546 middle schools in the state, 360 middle schools or 66 per cent of the total were located in Aizawl district, while 67 per cent enrolment and 67 per cent of teachers were also found in Aizawl district. Lunglei district had the second highest number of institutions, enrolment and teachers. The district had 19 per cent each of institutions and enrolment and 17 per cent 2 teacher. Lunglei District had the highest teacher-student ratio at the middle level with 13 student per teacher and Chhimituipui district the lowest ratio with 10 students per teacher.

Table 4.5 : District-wise Number of Institutions, Enrolment and Teachers (1991-92)

Particulars	Aizawl District	Lunglei District	Chhimituipui District	Grand Total
I. Primary school				
i) Institutions	664(59)	212(19)	242(22)	1118
ii) Enrolments	64656(67)	14814(15)	17132(18)	96602
iii) Teachers	2435(65)	694(18)	635(17)	3764
iv) Teacher-pupil ratio	1:26	1:21	1:27	1:26
II. Middle School				
i) Institutions	360(66)	102(19)	84(15)	546
ii) Enrolment	25268(67)	7044(19)	5133(14)	37445
iii) Teachers	2122(67)	539(17)	495(16)	3156
iv) Teacher-pupil ratio	1:12	1:13	1:10	1:12
III. High School				
i) Institutions	155(68)	38(17)	34(15)	227
ii) Enrolment	19868(71)	4462(16)	3614(13)	27944
iii) Teachers	1099(67)	312(19)	220(13)	1631
iv) Teacher-pupil ratio	1:18	1:14	1:16	1:17
IV. College level				
i) Institutions	13(72)	3(17)	2(11)	18
ii) Enrolment	7175(84)	899(10)	452(5)	8526
iii) Teachers	307(77)	55(14)	38(9)	400
iv) Teacher-pupil ratio	1:23	1:16	1:12	1:21

Note : Figures in brackets indicate percentages to total.

Sources :

1. Statistical Wing, Directorate of School Education Mizoram.
2. Directorate of Higher & Technical Education, Govt. of Mizoram, Aizawl

c) At the secondary and College level, Aizawl district had the maximum share in the number of institutions, enrolment and teachers and Lunglei District followed next. About 68 per cent of the High schools in the state were located in Aizawl district with 71 per cent of enrolment and 67 per cent of the teachers. At the college level, as much as 13 colleges in the state were found in Aizawl district with 84 per cent of enrolment and about 77 per cent of the total teachers in the state.

The teacher student ratio at the high school stage showed that Aizawl district had 18 pupils per teacher while in Lunglei district, this ratio was 14 students per teacher. At the college level, the teacher - student ratio in Aizawl district was 23 students per teacher and in Chhimituipui district the ratio was 12 students per teacher.

In Table 4.6 the number of primary, middle (upper primary) high school and college per 1000 population in the district is shown. Table 4.6 shows that Aizawl district had the least number of primary, middle and high school per thousand population. The districts of Lunglei and Chhimituipui had above the state average of 1.62 primary schools, 0.79 middle schools and 0.33 high schools per 1000 population. It is found that Chhimituipui district had the highest number of primary school per thousand population and Lunglei district had the highest number of middle schools per 1000 population while these two districts had the same number at 0.34 high school per thousand population.

With respect to college education in Mizoram, table 4.6 indicates that there were 0.03 college per thousand population. The two districts of Aizawl and Lunglei had the same number of college per 1000 population, same as the state level.

A district-wise comparison of student enrolment per total population in different stages of education in the state is given in Table 4.7. It reveals that Chhimituipui district had the highest number of student enrolment per total population in primary stage. About 17 percent of the district population were enrolled at the primary level while the data for Aizawl and Lunglei district were about 13.51 percent and 13.30 percent respectively.

Lunglei district had the student enrolment of 6.32 percent of the total population of the district at middle school level and this ratio was found to be the highest among the three districts of the state. At the high school stage, Aizawl district ranked first among the three districts with respect to student enrolment per total population with 4.15 percent followed by Lunglei and Chhimituipui district with 4 percent and 3.62 percent respectively.

At the college level, Aizawl district had the highest number of student enrolment per total population. It had recorded the student enrolment rate of 1.5 percent of the total population as against the state average of 1.24 percent while Lunglei and Chhimituipui district had the enrolment ratio per total population much below the average rate of the state level.

Table 4.6 District-wise Number of Institution per Thousand Population (1991)

State/District	Educational Institutions per 1000 population			
	Primary	Middle	High	College
MIZORAM	1.62	0.79	0.33	0.03
1. Aizawl District	1.39	0.75	0.32	0.03
2. Lunglei District	1.90	0.91	0.34	0.03
3. Chhimituipui District	2.42	0.84	0.34	0.02

Source : Statistical Wing, Directorate of School Education, Gov't of Mizoram, Aizawl, Mizoram.

Table 4.7 District-wise Student Enrolment per Total Population

State/District	Percent			
	Enrolment per total population:			
	Primary	Middle	High	College
MIZORAM	14.00	5.43	4.05	1.24
1. Aizawl District	13.51	5.28	4.15	1.50
2. Lunglei District	13.30	6.32	4.00	0.80
3. Chhimituipui District	17.15	5.14	3.32	0.45

Source : Same as Table 4.6

4.2.9. Professional and Technical Education :

Mizoram is lagging behind in technical and professional education. In fact, the whole of North Eastern Region of India is suffering from shortage of professional and technical education. As given in table 4.8 there are four Engineering Colleges and four Medical colleges for the region as a whole. Some of the states do not have either Engineering colleges or Medical colleges at all.

Table 4.8 Number of Professional and Technical Education in N.E.India. (As on September, 1992)

Institution	Arunchal Pradesh	Assam	Manipur	Meghalaya	Mizoram	Naga-land	Tri-pura
Engineering Colleges	-	3	-	-	-	-	1
Medical Colleges	-	3	1	-	-	-	-
Agriculture Colleges	-	2	1	-	-	1	-
Veterinary Colleges	-	1	-	-	-	-	-
Teacher Training Colleges	-	9	3	1	1	1	1
Teacher Training Schools	-	33	2	10	2	4	2
Polytechnics	2	8	1	1	1	1	1
Technical & Industrial Schools	2	27	19	3	1	3	3

Source : Basic Statistics of North Eastern Region 1995, NEC Shillong.

Table 4.8 reveals that Mizoram has no institutions of her own for higher technical, agricultural, medical and other professional education. As a result, there is an acute shortage of technical manpower in the fields of engineering, agriculture, medicines, fisheries and animal husbandry.

In the State as a whole, there is one teacher training college, two teacher training schools, one Polytechnic and one Industrial Training Institute. As on 1992-93, there were 238 students enrolled in Mizoram Polytechnic and 159 students in

Industrial Training Institutes. The Polytechnic provides diploma courses mainly in Civil, Mechanical and Electrical engineering. The Industrial Training Institute provides training for lower level technical manpower like carpenters, fitters, welders, electricians, radio mechanics and others.

Besides, there are some other important training facilities available in the state which are run by government departments themselves. The Agriculture department has Integrated Training Centre (ITC) which provides basic agricultural training of two year's duration, mostly for in-service personnels. The Krishi Vigyan Kendra (KVK) under the same department gives training to farmers. Indian Council of Agriculture Research has one sub-centre in Mizoram. Under Animal Husbandry and Veterinary Department, there is School of Animal Husbandry and Veterinary Science for providing training to Veterinary Field Assistant (VFA).

Forest Education and Research Institute under Forest and Environment Department also gives training to foresters and forest guards.

The state government use to sponsor students to pursue higher education outside the state in the field of engineering, medical, agricultural science and other professional education by giving stipend and other incentives.

4.3 TRENDS OF EDUCATIONAL EXPENDITURE IN MIZORAM :

4.3.1. Growth of Public Expenditure on Education :

The public expenditure on education increased remarkably over the period between 1972-73 and 1993-94. The total public educational expenditure in current prices which was only Rs. 196.90 lakhs in 1972 increased to Rs. 6409.11 lakhs in 1993, recording an increase of 17 percent per annum. But it may be noted that the growth rate of total revenue expenditure at 18 per cent per annum was higher than the growth rate of educational expenditure. The proportion of budgetary expenditure on education declined gradually during this period. It was 18.2 per cent in 1972 and this proportion went down sharply to 11.5 per cent in 1975 and by 1993, it again increased to 15.3 per cent. In absolute terms, the total educational expenditure multiplied by 32.5 times during this period as given in Table 4.9. The growth trend of public expenditure on education was given in figure 4.2.

The educational expenditure in nominal terms increased more rapidly than enrolments and population which increased at the rate of 3.6 per cent and 3.5 per cent respectively per annum during the period under study. The elasticity of educational expenditure with respect to enrolments and population showed that corresponding to 1 per cent increase in enrolment and population, expenditure has increased by 4.75 per cent and 4.88 per cent respectively (Table 4.10).

The costs of education expressed at current prices can be quite deceptive specially if the economy is experiencing price inflation. When costs of education are computed over a period of

time, it is necessary to convert current prices into constant prices which will take care of increase in the prices of goods and services and thus represent the real cost of-education. -- The growth of educational expenditure in constant 1980-81 prices has been attempted. This is again given in Table 4.9 and figure 4.3.

Table 4.9 Growth of Public Expenditure on Education 1972-73 to 1993-94, Mizoram.

(Rs in lakh)

Year	In current prices			In constant prices 1980-81=100	
	Total Edu- cational Expendi- ture (Revenue Account only).	Total Ex- penditure (Revenue Account only)	Percentage of Educational Expenditure to total Expenditure	Total Edu- cational Expendi- ture	Total Expe- ndi- ture
1972-73	196.90	1083.21	18.18	372.77	2050.76
1973-74	261.79	2115.73	12.37	416.73	3367.92
1974-75	299.50	2446.48	12.24	410.78	3355.48
1975-76	370.19	3205.40	11.55	533.64	5454.30
1976-77	514.04	3783.65	13.58	692.68	4099.39
1977-78	513.43	3042.16	16.88	666.10	3946.76
1978-79	565.78	4155.59	13.61	721.84	5301.85
1979-80	651.48	4895.98	13.31	722.20	5974.38
1980-81	764.36	5390.09	14.18	764.36	5390.09
1981-82	899.50	6680.63	13.46	817.73	6073.30
1982-83	1060.79	7806.06	13.59	895.94	7189.35
1983-84	1287.32	8512.19	15.12	1001.80	6624.27
1984-85	1619.24	10815.42	14.97	1172.51	7831.58
1985-86	2010.78	13141.09	15.30	1360.47	8891.13
1986-87	2515.27	17982.15	13.99	1595.98	11409.99
1987-88	3148.82	24611.90	12.79	1833.91	14334.24
1988-89	3263.32	23107.92	14.12	1757.31	12443.68
1989-90	3537.13	23963.38	14.76	1760.64	11928.01
1990-91	4235.68	30403.09	13.93	1893.46	13591.01
1991-92	4842.32	32108.83	15.08	1693.57	12522.94
1992-93	5596.17	36849.29	15.19	2003.64	13193.44
1993-94	6409.11	41888.28	15.30	1673.83	10939.74
Growth rate(%)	17.1%	18.00%		7%	7.9%

Note : Actual values are deflated with NNP/Net Domestic Product deflator.

Source : Report of the Comptroller and Auditor General of India, 1972-79 to 1993-94 (Finance Accounts) Govt. of Mizoram.

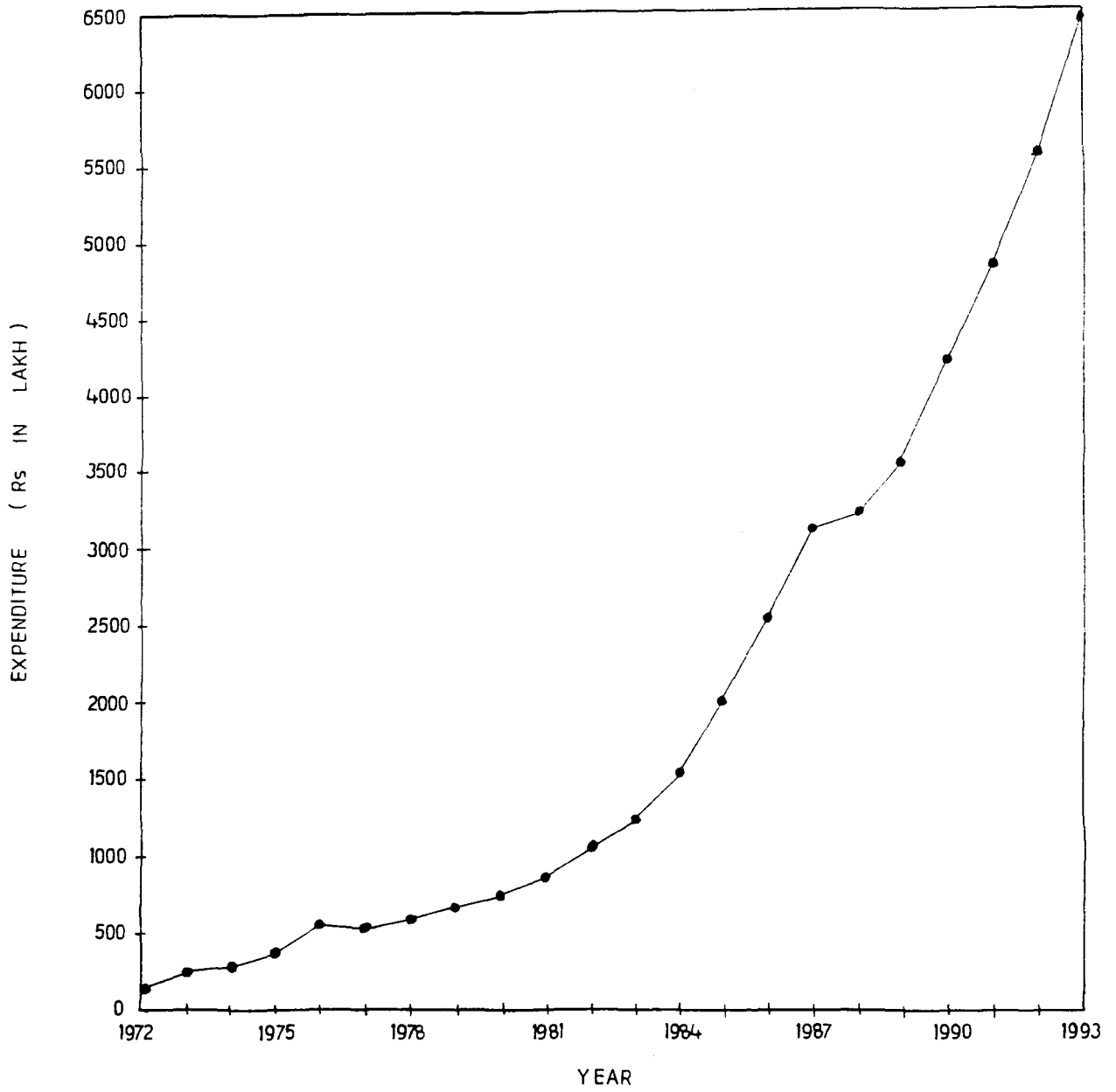


FIG 4.2 PUBLIC EXPENDITURE (REVENUE ACCOUNT) ON EDUCATION IN MIZORAM (AT CURRENT PRICES)

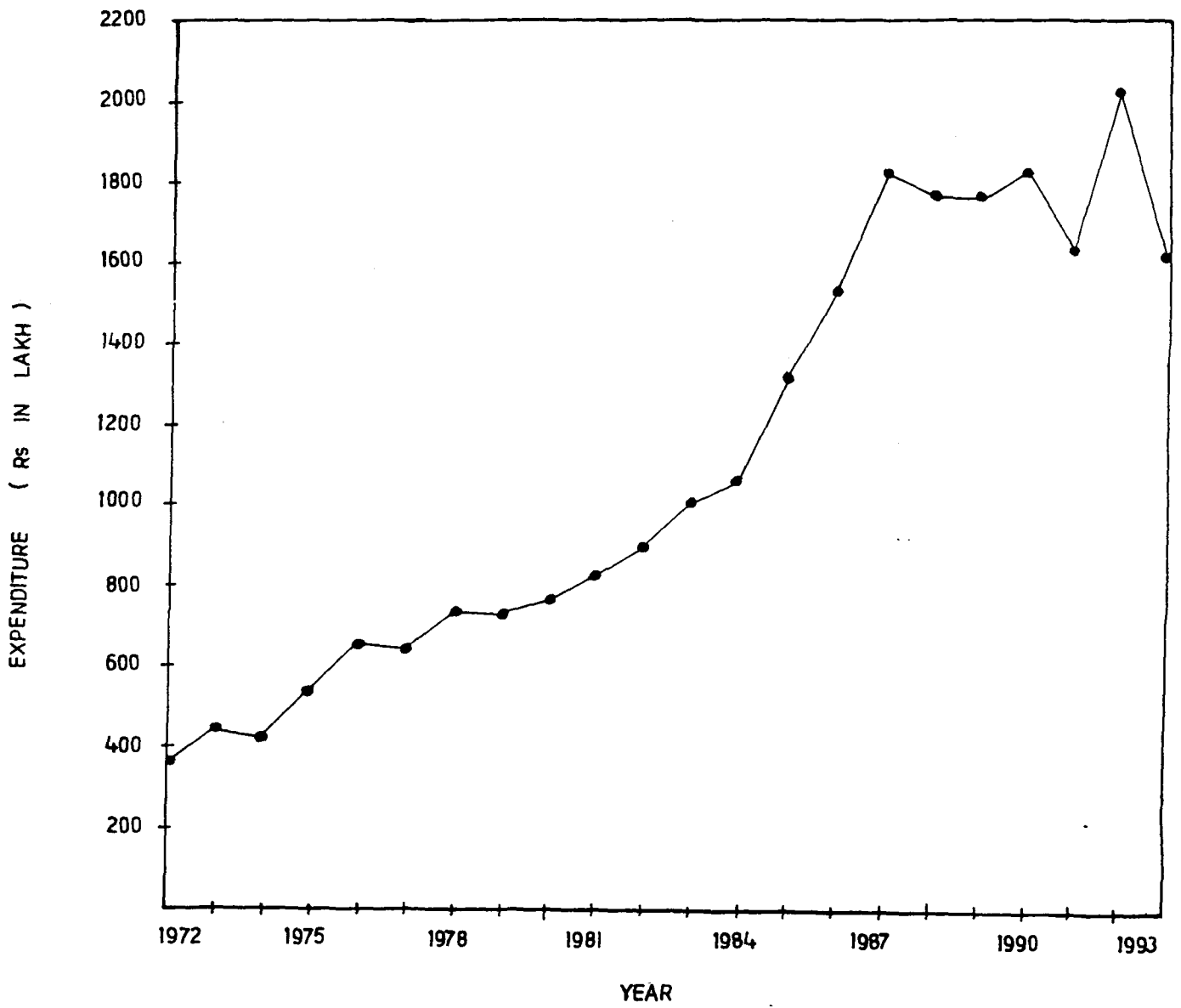


FIG 4.3 PUBLIC EXPENDITURE (REVENUE ACCOUNT) ON EDUCATION IN MIZORAM (AT CONSTANT 1980 - 1981 PRICES)

Table 4.10 Growth Rates and Elasticity of Public Expenditure on Education.

Period : 1972-1993

Items	Current Prices	Constant Prices
1. Growth rates (%)	17.10	7.00
2. Enrolment Elasticity	4.75	1.94
3. Population Elasticity	4.88	2.00

Real public expenditure on education have increased at the rate of 7 per cent per annum which was still higher than the rates of growth of enrolment and population yeilding implicit expenditure elasticity with respect to enrolments and population equal to 1.94 percent and 2.00 per cent respectively (table-4.10). The increase in educational expenditure in real terms indicated that the quality of inputs and other infrastructural facilities must have improved since real expenditure has increased more rapidly than enrolments.

The distribution of public expenditure by levels of education is given in table-4.11. The table reveals that the share of elementary education in the total educational expenditure was 38 per cent in 1972 while secondary education and college education accounted for 48 per cent and 5 per cent respectively. In 1993, the share of elementary education rose to 55.5 per cent but the percentage expenditure on secondary education came down sharply to 22.7 per cent.

The share of expenditure on college education went up to 12.8 per cent in 1993. It may be noted that the proportionate expenditure on college education showed a decline in the early parts of 1980s which was due to the fact that from the year 1979, the biggest college Pachunga Memorial Government college was taken over by North Eastern Hill University. However, the share showed a clear increase after the mid-1980s as more colleges were coming up in the state.

Table 4.11 Distribution of Public Educational Expenditure (Revenue Account) by levels of education in Mizoram 1972-79 to 1983-84 in current prices. (Rs in lakhs)

	Total	Elementary	Secondary	College	Others
1972-73	196.90 (00)	74.49 (37.83)	94.19 (47.83)	9.42 (4.78)	18.80 (9.55)
1973-74	261.79 (100)	91.48 (34.94)	125.82 (48.06)	12.18 (4.65)	32.31 (12.34)
1974-75	299.50 (100)	111.18 (37.12)	133.19 (44.47)	12.05 (4.02)	43.08 (14.38)
1975-76	370.19 (100)	136.02 (36.74)	166.99 (45.11)	17.71 (4.78)	49.47 (13.36)
1976-77	514.04 (100)	202.25 (39.34)	228.06 (44.37)	17.75 (3.45)	65.98 (12.83)
1977-78	513.43 (100)	204.63 (39.85)	210.22 (40.94)	20.40 (3.97)	78.18 (15.23)
1978-79	565.78 (100)	192.64 (34.05)	245.47 (43.39)	33.32 (5.89)	94.35 (16.67)
1979-80	651.48 (100)	375.28 (57.60)	128.56 (19.73)	23.62 (3.62)	124.02 (19.04)
1980-81	764.36 (100)	441.23 (57.72)	143.89 (18.82)	27.11 (3.55)	152.13 (19.90)
1981-82	899.50 (100)	513.05 (57.40)	169.53 (18.85)	32.75 (3.64)	184.17 (20.47)
1982-83	1060.79 (100)	607.57 (57.27)	216.31 (20.39)	32.65 (3.08)	204.26 (19.25)
1983-84	1287.32 (100)	723.41 (56.19)	264.56 (20.55)	45.61 (3.54)	253.74 (19.71)
1984-85	1619.24 (100)	920.36 (56.84)	293.88 (18.15)	71.62 (4.42)	333.38 (20.59)
1985-86	2010.78 (100)	1160.85 (57.73)	381.01 (18.95)	92.34 (4.59)	376.58 (18.73)
1986-87	2515.27 (100)	1579.51 (62.79)	472.38 (18.78)	81.79 (3.25)	381.59 (15.17)
1987-88	3148.82 (100)	1795.98 (57.03)	742.12 (23.88)	166.07 (5.27)	434.65 (13.80)
1988-89	3263.32 (100)	1391.16 (42.63)	1268.12 (38.86)	169.94 (5.21)	434.10 (13.30)
1989-90	3537.13 (100)	1903.75 (46.37)	882.70 (24.05)	396.14 (11.20)	354.54 (10.10)
1990-91	4235.68 (100)	2285.64 (53.96)	1070.99 (25.28)	393.64 (9.29)	485.41 (11.46)
1991-92	4842.32 (100)	2742.14 (56.63)	1126.18 (23.26)	418.82 (8.69)	555.18 (11.46)
1992-93	5596.17 (100)	3190.11 (57.00)	1296.72 (23.17)	484.48 (8.66)	624.86 (11.16)
1993-94	6409.11 (100)	3560.50 (55.55)	1415.05 (22.08)	757.11 (11.81)	676.45 (10.55)
Growth Rate	17.1%	19.1%	13.0%	21.7%	17.7%

Note : Figures in brackets indicates percentage to total
Source: Same as table 4.9

The expenditure on 'others' which include adult education, teacher's training, technical education and general administration which accounted for 9.5 per cent in 1972 increased consistently reaching its peak level of 20.5 per cent in 1985. This proportion came down gradually and by 1993 it was 10.55 per cent.

During the period between 1972 and 1993, public expenditure on elementary education recorded an annual increase of 19 per cent and in absolute terms, the expenditure increased by 47.5 times. At the secondary stage, the absolute expenditure increased by 15.02 times and the annual growth rate being 13 per cent. The absolute expenditure on college education have risen by 80.7 times and the expenditure registered a growth rate of 20.7 per cent per annum.

In real terms, public expenditure on elementary education increased at the rate of 8.9 per cent per annum while the growth rate at the secondary and college levels were 3.3 per cent and 11.8 per cent respectively (Table 4.12)

Table 4.12 Distribution of public Educational Expenditure by levels of Education in Mizoram (1972-73 to 1993-94) in constant prices-

(Rs. in lakh)

YEAR	Total Educa- tional Exp- enditure (Revenue account) only	Element- ary Edu- cation	Second- ary Edu- cation	College Education	Others
1972-73	372.77	141.03	178.32	17.83	35.59
1973-74	416.73	145.62	182.68	19.39	51.43
1974-75	410.78	152.49	182.68	16.53	59.09
1975-76	533.64	196.08	240.72	25.53	71.31
1976-77	692.68	272.54	307.32	23.92	88.91
1977-78	666.10	265.48	272.73	26.47	101.43
1978-79	721.84	245.78	313.18	42.51	120.37
1979-80	722.10	415.96	142.50	26.18	137.46
1980-81	764.36	441.23	143.89	27.11	152.13
1981-82	817.73	466.41	154.12	29.77	167.43
1982-83	895.94	513.15	182.69	27.58	172.52
1983-84	1001.80	562.96	205.88	35.49	197.46
1984-85	1172.51	666.44	212.80	51.86	241.40
1985-86	1360.47	785.42	257.79	62.48	254.79
1986-87	1595.98	1002.23	299.73	51.90	242.12
1987-88	1833.91	1046.00	438.04	96.72	253.14
1988-89	1757.31	749.14	682.89	91.51	233.76
1989-90	1760.64	947.61	439.37	197.18	176.47
1990-91	1893.46	1021.74	478.76	175.97	216.99
1991-92	1693.57	1069.48	439.22	163.36	216.53
1992-93	2003.64	1142.18	464.27	173.46	223.72
1993-94	1673.83	929.88	369.56	197.73	176.66
Growth rate (%)	7.0	8.9	3.3	11.8	7.4

Source : Same as Table 4.9

The time series data relating to public educational expenditure had been fitted to a linear trend curve. The linear trend equation is given by

$$Y_t = a + bt \quad \dots \quad (4.1)$$

where Y_t is public educational expenditure at time 't' and 'a' and 'b' are parameters of the function. If a graph of 'Y' is drawn against 't', this represents a straight line. The parameter 'a' is the intercept on the Y-axis and 'b' is the slope of the line in the positive direction of t-axis. If $b > 0$, then 'Y' increases at constant rate of 'b' ($dy/dt = b$). If $b < 0$, Y decreases at the same constant rate. So the trend is either monotonically increasing or decreasing (Nagar & Das, 1995).

The empirical estimates of the linear trend equation from the observed values of the time series data of public educational expenditure are given in Table 4.13. The trend curves have been estimated for public educational expenditure given in current and constant prices for each level of education. The estimated value of the expenditure in terms of current and constant prices exhibited an upward trend over the period between 1972-73 and 1993-94. In current prices, the proportion of variation explained by the function ranged from 67 to 87 per cent of the total change in public expenditure on education. The regression co-efficients were also significantly different from zero. In real terms, the function explained 48 per cent to 92 per cent of the total change in public expenditure on education. The regression co-efficient were also statistically significant. The following inferences can be drawn in respect of each of the level of education in Mizoram:

(i) At the elementary stage, the regression co-efficients of the function in current prices was 76.9 while in constant prices, it was 25.8 and both were significantly different from zero. The function in current prices explained approximately 83 per cent of the variation in the public expenditure on education. A little more than 92 per cent of the total variation in the expenditure was explained by the function given in constant prices.

(ii) At the secondary level, the trend equation estimated in current and constant prices explained 78 percent and 48 per cent of the variation in the educational expenditure and both the regression co-efficients were statistically significant.

(iii) At the college level, the regression co-efficients of the function given in current and constant prices were 12.9 and 4.3 respectively and they were statistically significant. The function estimated at current prices explained approximately 67 percent of the total variation in educational expenditure while in constant prices, the trend equation explained about 74 per cent of the variation in the total public expenditure on education.

(iv) The regression co-efficient relating to total public expenditure on education in current and constant prices were estimated at 135.9 and 41.2 respectively and both were statistically significant. The linear curves in current and constant prices explained about 87 per cent and 92 per cent of the variation in the total public expenditure.

**Table 4.13 Estimated Linear Trend of Public Educational Expenditure in Mizoram
(Current and Constant prices)**

Categories	Intercept	Regression Coefficient	Co-efficient of Determination (r^2)	t-statistics
A At Current Prices				
(i) Elementary Education	1100.15	76.9	0.8288	1.7493
(ii) Secondary Education	503.41	30.8	0.7767	2.2564
(iii) College Education	150.75	12.9	0.6697	3.193
All Levels	2025.6	135.9	0.8689	11.4877
B At Constant Prices				
(i) Elementary Education	599.04	25.8	0.9215	8.9431
(ii) Secondary Education	299.51	7.5	0.4772	2.4265
(iii) College Education	71.8	4.3	0.7424	14.0111
All Levels	1125.5	41.2	0.9229	15.3731

Table 4.14 presents the per capita budgeted expenditure of the different states in the North Eastern Region. It may be observed that the per capita budgeted expenditure on education in Mizoram has been persistently high compared to other states of the region. In 1991, the per capita expenditure on education was the highest in Mizoram and it was nearly three times higher than the all-India average. Nagaland has the second highest per capita budgeted expenditure on education and Assam the lowest per capita expenditure which was lower than the all-India average in 1991.

Table 4.14 : Per capita budgeted expenditure (Revenue account) on Education, North-East India.

State	1984-85	1985-86	1987-88	1989-90	1991-92
1. Arunachal Pradesh	219.7	227.77	371.94	438.90	512.50
2. Assam	94.7	99.68	123.36	148.10	217.41
3. Manipur	207.2	216.96	299.15	318.77	433.93
4. Meghalaya	132.0	142.99	197.82	316.77	436.81
5. Mizoram	233.9	285.8	400.4	466.4	670.75
6. Nagaland	274.3	309.5	339.8	375.2	605.5
7. Tripura	174.3	198.6	262.5	371.0	453.8
ALL INDIA	92.8	100.4	124.8	145.9	243.9

Source : Selected Educational Statistics 1984-85 & 1985-86; 1988-89, 1990-91 & 1992-93, Ministry of Human Resources Development, Govt. of India, New Delhi.

4.3.2 Share of education in the State's Plan :

The relative importance given to education in State's Plan has been declining gradually over the years. The share of education in the total annual plan outlay decreased from 9.6 per cent in 1972-73 to 6.5 per cent in 1993-94 (Table 4.15) During the Seventh Five Year Plan (1985-90) elementary education i.e., primary and middle level accounted for 38 per cent of the total plan expenditure as against the share of secondary education at 19.8 per cent. The total investment expenditure on higher

education amounted to Rs. 302 lakhs representing 10.9 per cent of the total plan expenditure and technical education accounted for Rs. 85.25 lakhs, i.e., 3.1 per cent of the total plan expenditure. (Table 4.16)

Table 4.15 Annual Plan Expenditure/Outlay on Education, 1972-73 to 1993-94, Mizoram

(Rupees in lakhs)

Year	Annual Expenditure/ Outlay		Total Expenditure/ Outlay
	Rs.	Per cent	Rs.
1972-73 (Actual)	41.85	9.6	437.00
1973-74 (Actual)	45.00	9.0	500.00
1974-75 (Actual)	33.00	4.8	690.00
1975-76 (Actual)	38.00	5.2	725.00
1976-77 (Actual)	55.37	6.5	855.00
1977-78 (RE)	51.00	4.5	1136.90
1978-79 (Actual)	90.00	6.2	1462.03
1979-80 (Actual)	84.52	4.9	1723.30
1980-81 (RE)	104.96	5.4	1927.62
1981-82 (Approved)	142.00	6.2	2300.00
1982-83 (Approved)	165.00	5.3	3100.00
1983-84 (Approved)	209.60	6.0	3480.00
1984-85 (Actual)	N.A.	-	4000.00
1985-86 (Actual)	327.00	6.9	4772.00
1986-87 (Actual)	414.00	6.7	6163.00
1987-88 (Actual)	495.00	6.9	7166.00
1988-89 (Actual)	577.00	6.9	8387.28
1989-90 (Approved)	799.00	7.8	10200.00
1990-91 (Approved)	927.00	7.4	12500.00
1991-92 (Approved)	957.00	6.3	15200.00
1992-93 (Approved)	1037.00	6.2	16600.00
1993-94 (Approved)	1202.00	6.5	18500.00

N.A. = not available; RE = revised estimates.

Note : Education expenditure/outlay includes Art & Culture Deptt.

- Sources :
1. Report on Socio-Economic Review, 1979-80, Mizoram.
 2. Statistical Handbook Mizoram, 1981, 1983 & 1989 Department of Economics & Statistics, Government of Mizoram, Aizawl.
 3. Economic Survey of Mizoram 1990-91, Department of Economics & Statistics, Government of Mizoram, Aizawl.
 4. Annual Plans, 1989-90 to 1993-94, Planning & Programme Implementation Department, Government of Mizoram.

In the Eighth Plan, the total proposed outlay increased by 177.5 percent i.e., from Rs.2756.17 lakhs in the Seventh Plan to Rs.7650.00 lakhs in the Eighth Plan. While the proposed outlay on elementary education increased by 169 percent in the Eighth Plan, the share of this sector decreased from 38 per cent in the Seventh Plan to 37 per cent in the Eighth Plan. The proposed outlay on secondary education have risen by 65 percent in the Eighth Plan, but its share in the total plan outlay had declined from 19.8 percent to 11.8 percent. The share of higher education had increased from 10.9 percent in the Seventh Plan to 15.2 percent in the Eighth Plan while the share of technical education had slightly improved from 3.1 percent to 3.6 percent in the Eighth Plan.

Table 4.16 : Expenditure on Education in Seventh Five Year Plan (1985-90) and Proposed Outlay during Eighth Plan (1990-95)

(Rupees in lakhs)

Particulars	Seventh Plan (Actual)	Eighth Plan (Outlay)	Percentage increase of 8th Plan from 7th Plan
1. Elementary education	1048.35 (38.0)	2820.20 (36.9)	168.9
2. Secondary education	544.80 (19.8)	900.00 (11.8)	65.1
3. Higher education	301.95 (10.9)	1160.00 (15.2)	228.6
4. Technical education	82.25 (3.1)	280.00 (3.6)	228.4
Grand Total*	2756.17	7650.00	177.5
Percentage to total Plan outlay	7.6	7.3	-

* includes Adult education, Sports & Youth Services, Art & Culture and general expenditure on Direction & Inspection, Scholarship, Research & Grant-in-aid to Mizoram School Education Board.

Source : Government of Mizoram, Planning & Programme Implementation Department. Draft 8th Five Year Plan (1990-95) & Annual Plan 1991-92, Aizawl.

Plan expenditure on education is relatively small compared to non-plan expenditure. As given in table 4.17 plan expenditure accounted for nearly 20 per cent of the total expenditure in 1988-89; this proportion had increased to 27 per cent in 1989-90. It had declined gradually and by 1993-94, it became 20.7 per cent, the remaining more than 70 percent was non-plan expenditure.

Table 4.17 Plan and no-plan Expenditure on education, Mizoram
Rs. in crores

Year	Plan expenditure		Non-plan Expenditure		Total	
	Rs.	percent	Rs.	percent	Rs	p.c
1988-89 (Actual)	6.46	19.8	26.18	80.2	32.64	100
1989-90 (Actual)	9.65	27.0	26.22	73.0	35.87	100
1990-91 (Actual)	11.48	26.3	32.15	73.7	43.62	100
1991-92 (Actual)	13.19	26.3	37.03	73.7	50.22	100
1992-93 (R.E)	12.33	22.1	43.43	77.9	55.76	100
1993-94 (B.E)	11.44	20.7	43.90	79.3	55.34	100

R.E = Revised Estimate, B.E = Budget Estimate.

Source : Mizoram Budget 1990-91, 1991-92, 1992-93 & 1993-94

4.4 UNIT COSTS OF EDUCATION IN MIZORAM:

This section deals with the estimates of unit costs of education in Mizoram at different levels of education such as Primary, Middle, High School and College level. The estimates of unit costs in terms of constant and current prices are given for the period between 1976-77 and 1991-92. Student enrolments were taken as the unit in this analysis and the total unit costs were worked out by two components i.e., teacher cost per student and non-teacher cost per student.

4.4.1 Unit cost of Education at the Primary school level:

The nominal unit cost of education at the Primary school level in 1976 was Rs. 271.37 which increased to Rs. 1518.92 in 1991. (Table 4.18). Thus, nominal unit cost in 1991 had risen 5.6 times its level in 1976. This increase in unit cost has resulted from simultaneous rise both in teacher and non-Teacher costs per student. Teacher cost per student was nearly Rs. 245 in 1976. But it has increased to Rs.1372 in 1991, reaching 5.6 times its base level. The percentage expenditure on salaries of teacher per student had remained more or less the same in 1976 and 1991. The unit cost of non-teaching inputs had correspondingly increased from Rs. 26.41 to Rs. 146.89 in 1991 rising again 5.6 times its base level. The proportion of overall educational cost accounted by non-teacher inputs was approximately 10 per cent both in 1976 and 1991 respectively.

The annual compound growth rates given in table 4.18 indicates that overall unit cost, teacher cost and non-Teacher cost per student grew at the same rate of 11 per cent in current prices and 3 per cent in constant prices. The trend of unit cost in constant prices both observed and estimated values at Primary school education between 1976-77 and 1991-92 are given in figure 4.4.

Table 4.18 : Unit cost of Education, Primary School.

Year	At current Prices (Rs.)			At constant Prices (Rs.)		
	Teacher cost	Non-Teacher cost	Total cost	Teacher cost	Non-Teacher cost	Total cost
1976-77	244.96 (90.27)	26.41 (9.73)	271.37 (100)	330.09	35.59	365.68
1977-78	257.34 (93.72)	17.23 (6.28)	274.57 (100)	333.86	22.35	356.21
1978-79	245.60 (91.64)	22.40 (8.36)	268.00 (100)	313.34	28.58	341.92
1979-80	162.74 (78.92)	43.47 (21.08)	206.21 (100)	180.38	48.18	228.56
1980-81	155.14 (63.27)	90.05 (36.74)	245.19 (100)	155.14	90.05	245.19
1981-82	165.3 (67.64)	79.30 (32.36)	245.03 (100)	150.66	72.09	222.75
1982-83	284.75 (92.58)	22.81 (7.42)	307.56 (100)	240.50	19.26	259.76
1983-84	372.87 (93.39)	26.37 (6.61)	399.24 (100)	290.17	20.52	310.69
1984-85	527.47 (90.13)	57.73 (9.87)	585.20 (100)	379.77	41.80	423.75
1985-86	591.83 (89.35)	70.56 (10.65)	662.39 (100)	400.43	47.74	448.17
1986-87	733.70 (91.77)	65.79 (8.23)	799.49 (100)	465.54	41.74	507.29
1987-88	882.70 (85.44)	150.47 (14.56)	1033.17 (100)	514.09	87.63	601.73
1988-89	1135.51 (87.20)	166.66 (12.80)	1302.17 (100)	611.47	89.75	701.22
1989-90	1101.66 (91.87)	97.48 (8.13)	1199.14 (100)	548.36	48.52	596.88
1990-91	1350.32 (87.88)	186.23 (12.12)	1536.55 (100)	603.63	83.25	686.88
1991-92	1272.03 (90.33)	146.89 (9.67)	1518.92 (100)	535.11	57.29	592.40
Growth rate (%)	11.4%	11.3%	11.4%	3%	3%	3%

Note : Figures in the brackets are percentage to total.

Source : Statistical Wing, Directorate of School Education, Mizoram.

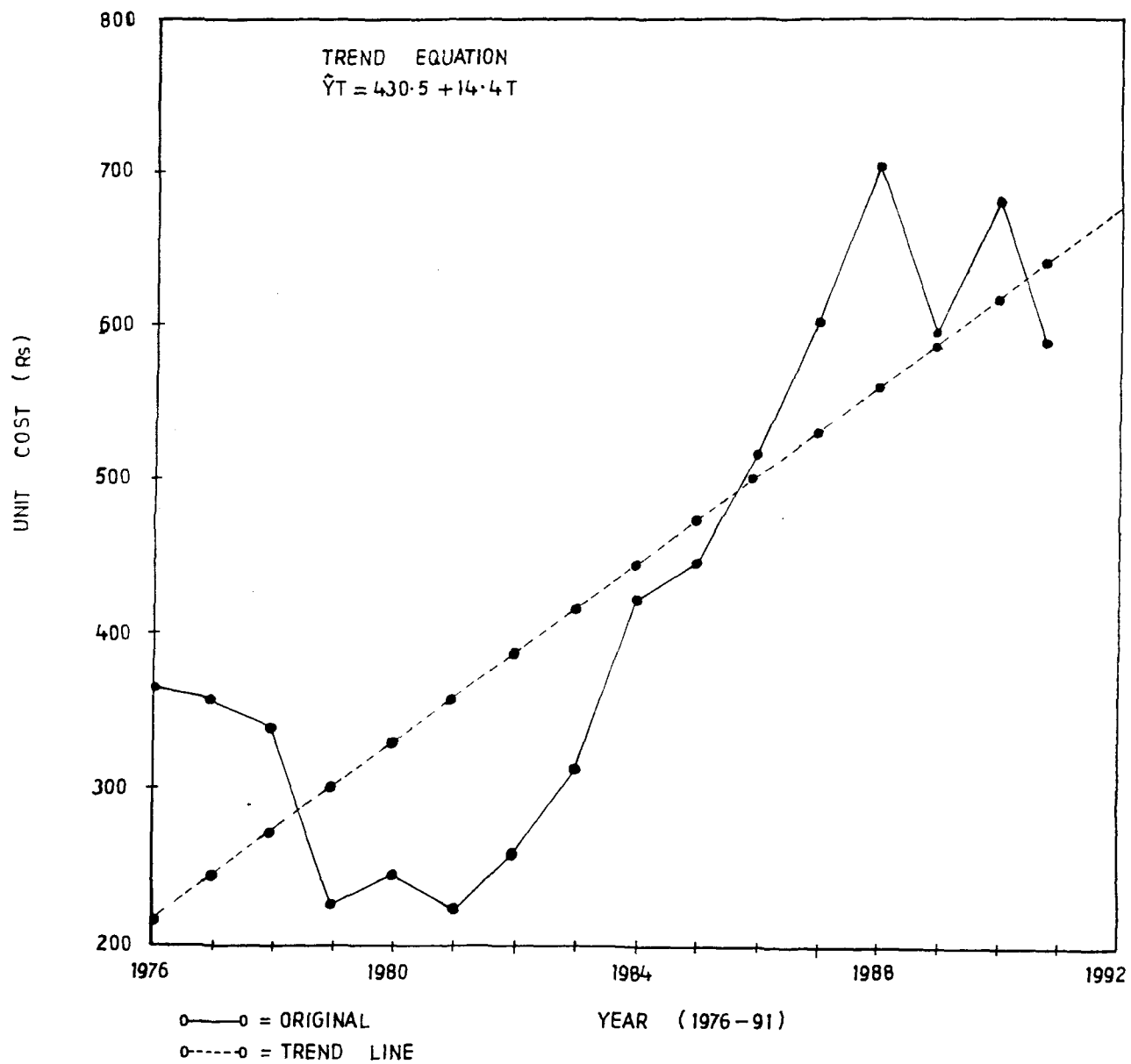


FIG 4.4 UNIT COST OF PRIMARY SCHOOL EDUCATION, 1976-77 TO 1991-92
 (AT CONSTANT 1980-81 PRICES)

4.4.2 Unit Cost at the Middle School level:

The estimates of unit cost at the middle school level is given in Table 4.19. The overall unit cost in current prices has risen from Rs. 608 in 1976 to Rs. 2902 in 1991. The nominal unit cost has increased 4.8 times in 16 years from 1976 to 1991 and its annual growth rate being 10.2 per cent.

Teacher cost in 1976 was Rs. 505.95 per student and it rose to Rs. 2666.76 in 1991. The share of teacher cost to the overall unit cost increased from 83.17 per cent in 1976 to 91.89 per cent in 1991. Non-teacher cost rose from Rs. 102 to Rs. 235 in the same period and the proportion of overall educational cost accounted by non-teacher inputs has decreased from 17 per cent in the same period.

The growth rates given in table 4.19 indicate that teacher cost in nominal terms had a growth rate of 11 per cent while the expenditure on non-teaching inputs has increased at the rate of 5.2 per cent per annum. In real terms, the annual growth rates are very low. The overall unit cost and teacher per student rose at the rates of 1.9 per cent 2.6 per cent annually. Non-teacher cost registered a negative growth rate of 2.9 per cent annum. The trend of unit cost in constant prices both observed and estimated values are given in figure 4.5.

Table 4.19: Unit cost of Education, Middle School level.

Year	At current Prices (Rs.)			At constant Prices (Rs.)		
	Teacher cost	Non-Teacher cost	Total cost	Teacher cost	Non-Teacher cost	Total cost
1976-77	505.93 (83.17)	102.39 (16.83)	608.32 (100)	681.75	137.97	819.72
1977-78	490.98 (85.86)	80.81 (14.13)	571.79 (100)	636.97	104.84	741.81
1978-79	462.81 (82.68)	96.98 (17.32)	559.79 (100)	590.47	123.73	714.40
1979-80	482.13 (77.23)	142.11 (22.77)	624.24 (100)	534.39	157.51	691.90
1980-81	412.97 (57.40)	306.49 (42.60)	719.46 (100)	412.97	306.49	719.46
1981-82	430.66 (59.55)	292.48 (40.46)	723.14 (100)	391.51	265.89	657.40
1982-83	744.40 (89.26)	89.56 (10.74)	833.96 (100)	628.72	75.64	704.36
1983-84	838.54 (87.22)	122.92 (12.78)	961.46 (100)	652.56	95.66	748.22
1984-85	913.09 (80.68)	218.63 (19.31)	1131.72 (100)	611.18	158.31	819.49
1985-86	1078.01 (88.39)	141.72 (11.61)	1220.20 (100)	729.69	95.88	825.57
1986-87	1404.01 (80.30)	344.52 (19.70)	1748.53 (100)	890.87	218.60	1109.47
1987-88	1446.33 (86.02)	235.10 (13.98)	1681.43 (100)	842.36	136.92	979.28
1988-89	1935.52 (90.71)	198.11 (9.29)	2133.63 (100)	1042.28	106.68	1148.96
1989-90	1847.45 (90.60)	191.76 (9.40)	2039.21 (100)	919.59	95.45	1015.04
1990-91	2102.96 (86.70)	322.50 (13.30)	2425.46 (100)	940.08	144.16	1084.24
1991-92	2666.76 (91.89)	235.30 (8.11)	2902.06 (100)	1040.04	91.77	1131.81
Growth rate (%)	10.9%	5.2%	10.2%	2.6%	- 2.5%	1.9%

Note : Figures in the brackets are percentage to total.

Source : Same as Table 4.18

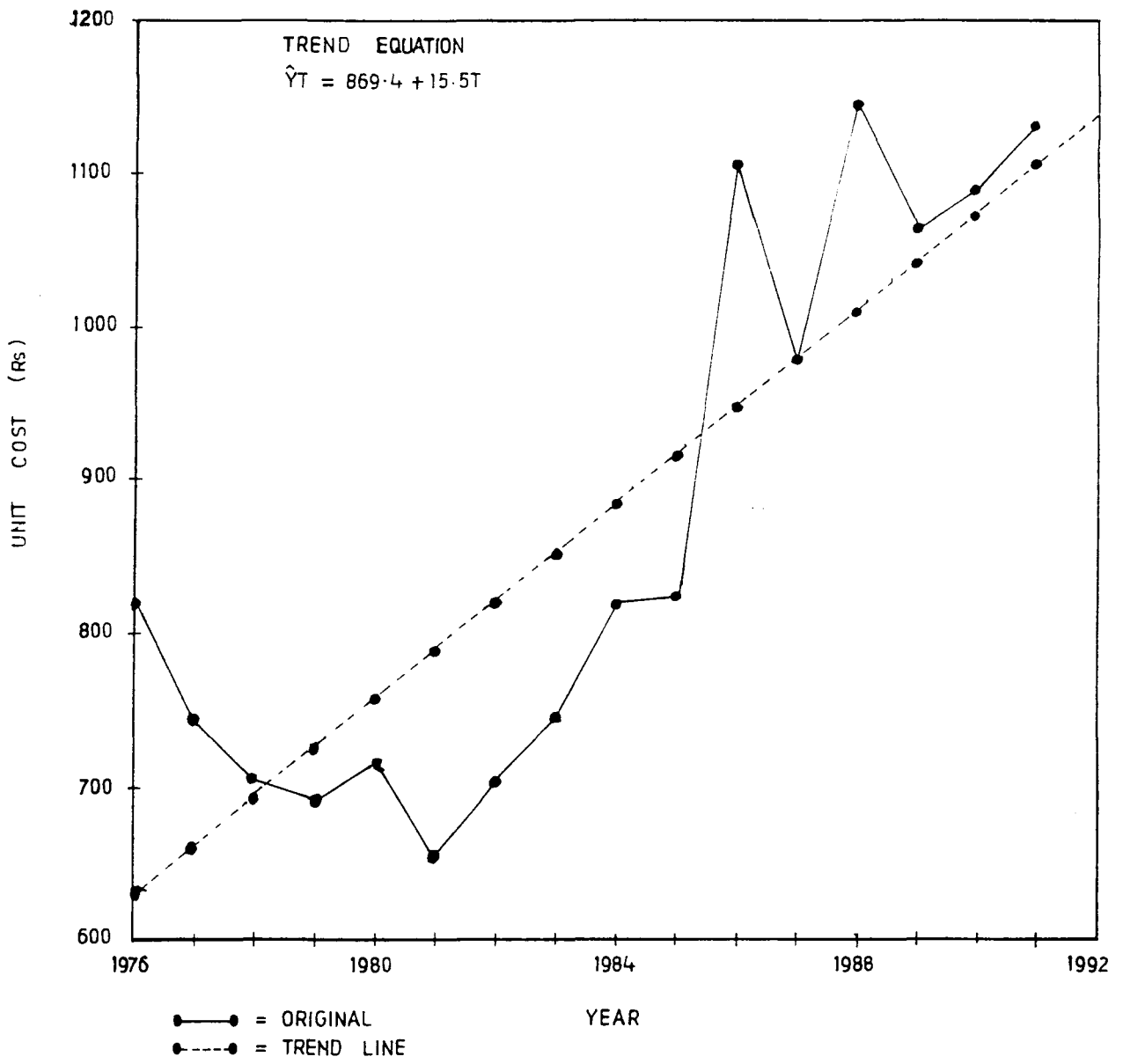


FIG 4.5 UNIT COST OF MIDDLE SCHOOL EDUCATION, 1976-77 TO 1991-92
 (AT CONSTANT 1980-81 PRICES)

4.4.3. Unit Cost of Education at the High School Level:

The overall unit cost at the High School Level in current prices was Rs. 642.29 in 1976 and it rose to Rs. 4306.22 in 1991 (Table 4.20). The nominal unit cost in 1991 had risen 5.3 times its level in 1976. Teacher cost per student was Rs. 500 in 1976, accounting for about 78 per cent of the overall unit cost. It has increased to Rs. 1823 in 1991, reaching 5.6 times its base level. The proportion of teacher cost had come down to 53.51 per cent in 1991. The unit cost of non-teacher inputs had increased from Rs. 142.39 in 1976 to Rs. 1583.53 in 1991 - an increase of 11.12 times. The proportion of overall educational costs accounted by non-teacher inputs increased from 22.17 per cent to 46.49 per cent in the same period.

The annual compound growth rates had indicated that non-teacher costs had risen more rapidly than the teacher cost. The lowest growth rate of 8.4 per cent in current prices was recorded in case of teacher cost per student. In real terms, teacher cost rose at the rate of 0.3 per cent annually. Figure 4.5 presents the trend of unit cost in constant prices at the high school level.

Table 4.20: Unit cost of Education, High School level.

Year	At current Prices-(Rs.)			At constant Prices (Rs.)		
	Teacher cost	Non-Teacher cost	Total cost	Teacher cost	Non-Teacher cost	Total cost
1976-77	499.90 (77.83)	142.39 (22.17)	642.29 (100)	673.63	191.87	865.50
1977-78	523.52 (76.30)	164.18 (23.70)	692.70 (100)	685.68	213.00	898.68
1978-79	499.70 (73.87)	176.76 (26.13)	676.46 (100)	637.53	225.52	863.05
1979-80	605.69 (84.14)	114.16 (15.86)	719.85 (100)	671.35	126.53	797.88
1980-81	611.31 (59.84)	410.19 (40.16)	1021.50 (100)	611.31	410.19	1021.50
1981-82	534.89 (55.74)	424.76 (44.26)	959.65 (100)	486.23	386.14	872.37
1982-83	879.72 (77.88)	249.90 (22.12)	1129.62 (100)	743.01	211.06	954.07
1983-84	769.92 (77.19)	227.53 (22.81)	997.45 (100)	599.14	177.07	776.21
1984-85	1167.34 (73.77)	415.14 (26.23)	1580.48 (100)	845.29	300.61	1145.90
1985-86	1208.81 (72.78)	452.11 (27.22)	1660.92 (100)	817.87	305.89	1123.76
1986-87	1350.82 (72.02)	524.89 (27.98)	1875.71 (100)	857.12	333.05	1190.17
1987-88	1490.89 (46.41)	1721.48 (53.59)	3212.37 (100)	868.31	1002.61	1870.92
1988-89	1471.00 (50.47)	1443.46 (49.52)	2914.46 (100)	792.14	777.31	1569.45
1989-90	1445.58 (44.99)	1767.18 (55.01)	3212.76 (100)	719.55	879.63	1599.18
1990-91	1758.97 (55.59)	1410.59 (44.50)	3169.56 (100)	786.31	630.31	1416.88
1991-92	1822.69 (53.51)	1583.53 (46.49)	3406.22 (100)	710.88	617.60	1328.48
Growth rate (%)	8.4	16.2	11.1	0.3	7.6	2.7

Note : Figures in the brackets are percentage to total.

Source : Same as Table 4.18

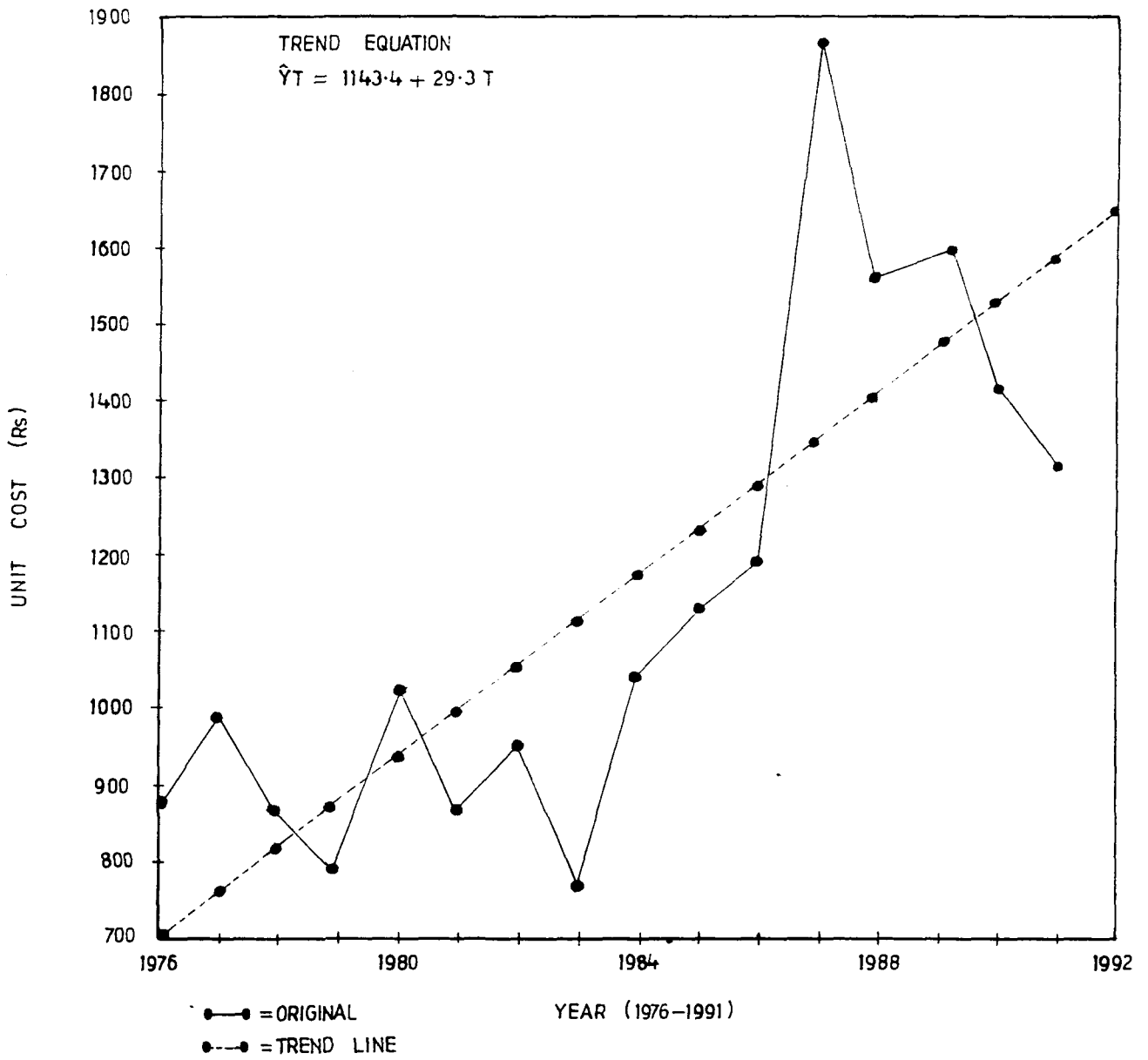


FIG 4.6 UNIT COST OF HIGH SCHOOL EDUCATION, 1976-77 TO 1991-92
 (AT CONSTANT 1980-81 PRICES)

4.4.4 Unit Cost of College Education in Mizoram:

The estimates of unit cost at the college level for the period between 1976-77 and 1986-87 is presented in Table 4.21. The overall unit cost at current prices increased from Rs. 1509.58 in 1976-77 to Rs. 4275.69 in 1986-87 with the annual growth rate being 9.9 per cent. Teacher cost per student was Rs. 540.40 in 1976 which rose to Rs. 1721.43 in 1986 while the expenditure on non-teaching inputs increased from Rs. 909.08 to Rs. 2554.26 in the same period. The annual compound growth rates of these two items were 11 per cent and 9 per cent respectively. In real terms, overall unit cost rose at the rate of 2.7 per cent per annum while teacher cost and non-teacher cost at the rate of 3.7 per cent and 2.1 per cent. The trend of unit cost - observed and estimated values in constant prices are shown in figure 4.7.

Table 4.21: Unit cost of Education, College level

Year	At current Prices (Rs.)			At constant Prices (Rs.)		
	Teacher cost	Non-Teacher cost	Total cost	Teacher cost	Non-Teacher cost	Total cost
1976-77	540.50 (35.80)	969.08 (64.20)	1509.58 (100)	728.34	1305.86	2034.20
1977-78	523.18 (32.95)	1064.81 (67.05)	1587.99 (100)	678.75	1381.43	2060.18
1978-79	561.63 (19.21)	870.85 (60.79)	1432.48 (100)	716.55	1111.06	1827.61
1979-80	465.70 (30.89)	1041.65 (69.11)	1507.41 (100)	516.18	1154.57	1670.75
1980-81	444.68 (26.04)	1262.88 (73.96)	1707.56 (100)	444.68	1262.88	1707.56
1981-82	441.72 (27.78)	1589.96 (72.11)	1589.96 (100)	401.56	1445.41	1846.98
1982-83	789.97 (41.64)	1107.22 (58.36)	1897.19 (100)	667.20	935.15	1602.35
1983-84	1007.23 (38.91)	1581.43 (61.09)	2588.66 (100)	783.84	1230.68	2014.52
1984-85	-	-	N.A.	-	-	-
1985-85	1518.51 (41.04)	2181.55 (58.96)	3700.06 (100)	1027.41	1476.01	2503.41
1986-87	1721.43 (40.26)	2554.26 (29.74)	4275.69 (100)	1092.28	1620.72	2712.00
Growth rate (%)	11.1%	9.1%	9.9%	3.7%	2.1%	2.7%

Note: Figures in the brackets are percentage to total.

Source: Same as Table 4.18

4.4.5 Optimum Enrolment Size and Unit Cost of Education:

For determining the optimum enrolment level and the corresponding minimum cost at each level of education, the quadratic function had been fitted to the data relating to the total unit cost, teaching cost and non-teaching cost per student given separately in Table 4.18, 4.19, 4.20 and 4.21. The cost curves had been estimated from the values given in constant prices. The results are presented in Table 4.22

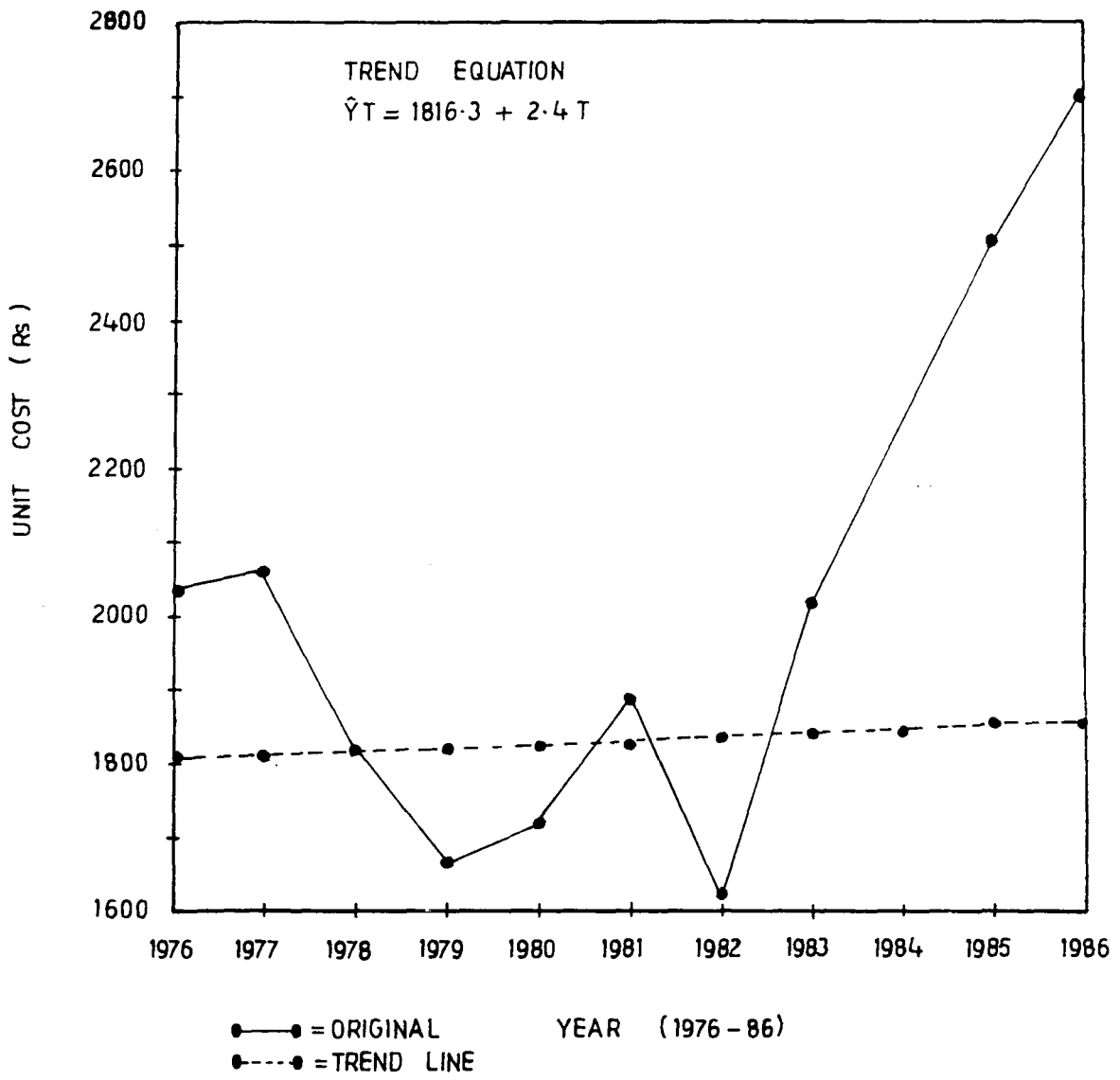


FIG 4.7 UNIT COST OF COLLEGE EDUCATION, 1976-77 TO 1986-87
 (AT CONSTANT 1980-81 PRICES)

At the primary school level, the quadratic cost function furnished the estimates of the optimum size of enrolment and the corresponding level of minimum cost. The size of enrolment where the unit cost per student was estimated at least was 73426 students and the minimum cost corresponding to this level of enrolment was Rs. 273. The primary school system with such enrolment levels is working optimally. On the other hand, the system suffers diseconomies of scale if the enrolment size is more or less than this number. The curve representing teaching cost per student was also U-shaped. The optimum size and the minimum cost per student for this item were estimated at 74672 students and Rs. 221 per student.

The cost curve relating to non-teaching inputs had been found to be concave to the origin which implied that the minimum cost and the optimum enrolment size corresponding to it could not be estimated in the usual sense. What can be estimated, however, is level of enrolment at which the unit cost is maximum.

Table 4.22 : Quadratic cost functions of different levels of education in Mizoram.

A. PRIMARY SCHOOLS

Items of cost	intercept	coefficient of		optimum	
		x	x ²	size	cost(Rs)
1. Overall Unit cost	3184.7	-0.079	+0.00000054	73426	273
2. Teaching cost	3622.27	-0.0911	+0.00000061	74672	221
3. Non-teaching cost	-427.32	+0.0116	-0.000007	829	(-)423

B. MIDDLE SCHOOLS

Items of cost	intercept	coefficient of		optimum	
		x	x ²	size	cost(Rs)
1. Overall unit cost	592.4	+0.001	+0.0000002	Indeterminate	
2. Teaching cost	638.4	-0.031	+0.0000005	31000	158
3. Non-teaching cost	-46.16	+0.014	-0.0000002	35000	199

C. HIGH SCHOOLS

Items of cost	intercept	coefficient of		optimum	
		x	x ²	size	cost(Rs)
1. Overall unit cost	-2031.5	+0.2948	-0.0000062	237774	1473
2. Teaching cost	519.81	+0.0184	-0.000064	2300	541
3. Non-teaching cost	-2551.3	+0.2765	-0.0000058	23836	744

D. COLLEGES

Items of cost	intercept	coefficient of		optimum	
		x	x ²	size	cost(Rs)
1. Overall unit cost	698.9	+0.6516	-0.00008	4072	2026
2. Teaching cost	223.8	+0.2314	-0.00027	428	273
3. Non-teaching cost	475.1	+0.4203	-0.000052	4041	1324

At the middle school level, the curve relating to the teaching cost per student was found to have a U-shaped cost curve. The optimum size of this function was estimated at 31000 students and the minimum cost was only Rs.159 per student. The curve representing total unit cost at the middle school level was 'indeterminate' i.e., the size of optimum level of enrolment and minimum cost could not be estimated. The curve relating to non-teacher cost was, however concave to the origin, i.e., only optimum enrolment level at which the unit cost was maximum can be estimated.

The estimated curves representing total unit cost, teaching cost and non-teaching cost per student at the High school and college level were also concave to the origin and thus, these cost curves had an inverted U-shaped. Therefore, these functions cannot furnish estimates of the minimum cost and optimum size of enrolment. However, these functions can give estimates of the enrolment size at which the cost is maximum. At these levels of enrolment, economies of scale is at their minimum level while the diseconomies of scales seem to be operative. Hence, either an increase or decrease in enrolment at these levels will reduce the unit cost (Prakash, 1996). The above estimates, therefore showed that the second degree polynomials function did not seem to be appropriate for approximating the unit cost curves relating to middle, high school and college level of education in Mizoram.

4.5 SOURCES OF FUND FOR EDUCATION IN MIZORAM:

There are various sources of finance for education. These sources may be classified as : (a) government sources which includes central, state and local governments; and (b) non-government sources including contribution of students/ parents of families in the form of fees and other maintenance expenditure and the contribution of the community at large through donations and endowments. At the national level, the share of government both central and state at all levels of education has remarkably increased over the years and more than 80 per cent of the total fund came from this source (Tilak, 1993). In Mizoram, education is funded mainly by the state government. In the following section, the pattern and procedure of grant-in-aid system of the state and the various sources of educational finance at the different levels of education are analysed.

4.5.1 Pattern and Procedure of Grant-in-aid System in the State:

There are two patterns and procedures of Grant-in-aid system in Mizoram - one governing the school education and other relating to college education. Recognised educational institutions run and managed by private agencies are given grants-in-aid according to the rules. The Mizoram Aided School (Recurring and Non-recurring Grants-in-aid) Rules 1990 govern the pattern and procedure of grant-in-aid under the school education while the Mizoram College (Recurring and Non-recurring Grants-in-aid) Rules, 1990 govern the system for the college education. These two Rules replaced the earlier two Rules: Recurring Grants-

in-aid for General maintenance Rules 1975 and the Non-recurring Grants-in-aid Rules, 1976.

School education :

The Grant-in-aid system for school education stipulated that the approved expenditure of a school comprises the salaries of teachers and other persons appointed with the approval of the director, or any other staff authorised by him. The government is the competent authority to sanction grant under these rules. The non-recurring grants-in-aid are of the following categories:-

- (a) Grants for the construction/renovation of building involving major addition and repairs;
- (b) Other admissible non-recurring grants include the construction of classrooms and laboratory as well as for the strengthening of library facilities; for organisation of sports and other competitions; and for conducting tours for students/teachers.

The Grants-in-aid Rules classified recognised schools into two groups: (i) Government aided schools which receive recurring and non-recurring grants-in-aid for general maintenance under the grants-in-aid system and (ii) Unaided recognised schools which are private schools run by non-government organisation and they do not receive any grants-in-aid from the government. These schools usually charge heavy fees from the students (Mahajan et al., 1994)

Applications for grants-in-aid are made as per the prescribed forms to the Director of School Education and the sanction is approved by the government and all funds under the system are subject to audit by authorised audit officers of the Accountant General and the examiner of state/local accounts.

College Education :

Under the system for college education in Mizoram, there are two categories of recurring grants-in-aid for general maintenance, namely:-

- (a) Deficit Grants-in-aid
- (b) Adhoc Grants-in-aid

The grants-in-aid are governed, among other by the following conditions :-

- the institution shall not have under its employment any unqualified staff;
- It shall have a minimum enrolment of 60(sixty) in case of college with only Pre-University classes and 150(one hundred fifty) in case of degree colleges with proper affiliation from the affiliating University;
- It must have been in existence for a minimum period of three years running effectively on its own resources and/or any adhoc grant received from the government.

The approved income of a college includes the total income derived from tuition fees, fines, subscriptions, endowments and grant from local bodies or authorities but does not include any grants paid from the state fund. Other approved income consists

of voluntary contributions or donations collected and voluntary contributions by the parents or guardians for the construction of any building for the college or its hostel.

Under this system, the approved expenditure of college comprises the salaries of the teacher and staff appointed with the approval of the Director or any other officer authorised by him on this behalf to the extent and according to the scales of pay as prescribed by the government from time to time. The government is the competent authority to sanction any grant under this Rule.

The Rules further stipulates that the college should have a Reserve Fund of Rs.35,000 in respect of college with Pre-university courses only and Rs.50,000 in respect of college with degree courses.

The non-recurring grants-in-aid under the Rules have the following categories:-

- Grants for construction/renovation involving major addition and repair entailing heavy expenditure and/or purchase of institution building including hostel building and staff quarters, playfields, fencing, etc.
- Other admissible non-recurring grants consist of the construction of classroom, common room, laboratory, hostel, furniture; purchase of library books; for organisation of sports and other competition; for conducting educational tours and excursions; organisation of seminar, etc.

4.5.2 Sources of Fund for Elementary and Secondary Education:

Elementary Education in the state relies on public funds to the extent of nearly a hundred percent. In Primary education, the share of Government is 99 percent in 1976 and it has slightly come down to 98.7 percent in 1991-92 while other sources accounted for only 0.8 per cent in 1976-77 and 1.3 per cent in 1991-92. At the middle level, the share of Government increased from 94.4 per cent in 1976-77 to 99.7 per cent in 1991-92. Meanwhile, the proportion of 'Other Sources' declined from 5.6 per cent to 0.3 during the same period.

In High School, the share of Government increased from 83.4 per cent in 1976-77 to 98.6 per cent in 1991-92. The share of Local bodies in financing High School education has gradually declining. Student's contribution in the form of fees was 7 per cent in 1976-77 and its relative share declined to less than 1 per cent in 1991-92. 'Other Sources' accounting 6 per cent in 1976-77 had fallen down to below 1 per cent in 1991-92. (Table 4.23)

Table 4.23 Sources of Fund for Primary, Middle and High School.

(percentage)

Particulars	1976-77	1979-80	1982-83	1985-86	1988-89	1991-92
PRIMARY LEVEL :						
1. Government	99.2	100.0	99.5	99.3	99.9	99.7
2. Other Sources	0.8	00.0	0.5	0.7	0.1	1.3
Total	100.0	100.0	100.0	100.0	100.0	100.0
MIDDLE LEVEL :						
1. Government	94.4	99.2	97.5	98.0	99.2	99.7
2. Other sources	5.6	0.8	2.5	2.0	0.8	0.3
Total	100.0	100.0	100.0	100.0	100.0	100.0
HIGH SCHOOL LEVEL :						
1. Government	83.4	88.6	91.3	90.3	98.5	98.6
2. Local Bodies	3.8	2.3	1.6	2.8	0.1	-
3. Fees	6.8	6.0	4.3	4.9	0.8	0.6
4. Other Sources	6.0	3.0	2.8	2.0	0.4	0.8
Total	100.0	100.0	100.0	100.0	100.0	100.0

Sources : Directorate of School Education, Govt. of Mizoram, Aizawl, Mizoram.

4.5.3 Sources of Fund for College Education:

The available data on the sources of fund for College education in the state indicated that the share of Government had increased over the years while the students' contribution in the form of fees had declined. In 1976-77, the share of the government was 81 per cent. While this proportion had increased to 87 per cent in 1986-87, with an annual growth rate of 22.8 per cent, the share of fees had decreased from 11.4 per cent in 1976-77 to 4.9 per cent in 1986-87, with a growth rate of 12.1 per cent annually. The share of local bodies was in the range of 4.6 per cent to 7.6 per cent. (Table 4.24)-

Table 4.24 Sources of Fund for College education in Mizoram.
Rupees in lakhs

Year	Government	Local Bodies	Fees	Other Sources	Grand Total
1976-77	25.5 (80.9)	2.0 (6.3)	3.6 (11.4)	0.4 (1.3)	31.5
1977-78	33.4 (83.5)	2.0 (5.0)	4.4 (11.0)	0.2 (0.5)	40.0
1978-79	36.3 (78.7)	2.1 (4.6)	6.5 (14.1)	1.2 (2.6)	46.1
1979-80	41.8 (71.0)	4.5 (7.6)	8.7 (14.8)	3.9 (6.6)	58.9
1980-81	60.6 (77.3)	4.3 (5.5)	9.2 (11.8)	4.2 (5.4)	78.2
1981-82	62.1 (77.5)	4.3 (5.4)	9.8 (12.2)	3.9 (4.9)	80.1
1982-83	82.3 (80.8)	7.1 (7.0)	10.3 (10.1)	2.2 (2.1)	101.9
1983-84	107.0 (82.5)	7.8 (6.0)	13.7 (10.6)	1.2 (0.9)	129.7
1985-86	170.2 (88.6)	9.2 (4.8)	11.0 (5.7)	1.6 (0.8)	192.0
1986-87	198.8 (86.7)	14.2 (6.2)	11.3 (4.9)	5.0 (2.2)	229.4
Growth Rate(%)	22.8	21.6	12.1	28.7	22.0

Source : Directorate of School Education, Govt. of Mizoram, Aizawl.

In table 4.25 the distribution of Government fund between Government colleges and Non-Government colleges is presented.

Table 4.25 Distribution of Public Fund between Government Colleges and Non-Government Colleges in Mizoram 1987-88 to 1993-94

Year	Govt. College			Non-Govt. College			Grand Total
	Plan	Non-Plan	Total	Plan	Non-Plan	Total	
1987-88	5.50	23.65	29.15	40.50	62.20	102.70	131.85
1988-89	6.20	69.65	75.85	61.00	30.00	91.00	166.85
1989-90 (R.E)	8.25	67.65	75.90	67.00	30.00	97.00	172.90
1990-91	3.93	99.54	103.47	39.40	65.24	104.64	208.11
1991-92	8.23	99.57	107.80	43.92	76.74	120.66	228.46
1992-93	10.00	137.27	147.27	67.43	73.50	140.93	288.20
1993-94	21.00	232.00	253.00	115.00	64.00	179.00	432.00

Note : R.E = Revised Estimate.

Source : Budget Estimate, Govt. of Mizoram (various years)

As given in the Table 4.25, out of Rs.132 lakhs spent in 1987-88 for college education in Mizoram, about Rs.29 lakhs(22.12%) was allocated to Government colleges and Rs.103 lakhs(77.90%) to Non-Government colleges. In 1993-94, the state Government spent Rs.432 lakh for college education and about 58.6 per cent was allocated to Government colleges and about 41.4 per cent on Non-Government colleges. During this period, the amount spent on Government college increased from Rs.29 lakh to Rs.253 lakh recording an increase of 9 times the level in 1987-88. The reason for rapid increase in the share of Government colleges has been due to the fact that some private colleges were taken over by the state Government during this period.

Meanwhile fund allocated to Non-Government colleges increased from Rs.103 lakh in 1987-88 to Rs.179 lakh in 1993-94 and registered a growth of 74.3 per cent during the period. The table clearly revealed that the share of government colleges have been increasing rapidly over the year as against fund allocated to non-government colleges.

REFERENCES :

- Dawngliana, M., **Census of India, 1991. Series-17, Mizoram. Paper-1 of 1991, Provisional Population Totals.**
- Directorate of School Education, **Statistical Wing, Aizawl, Mizoram.**
- Directorate of Higher and Technical Education, Aizawl, Mizoram.
- Government of Mizoram, **Annual Plans, 1989-90 to 1993-94, Planning and Programme Implementation Department, Mizoram.**
- Government of Mizoram, **Budget Estimates(various years) Mizoram.**
- Government of Mizoram, **Economic Survey of Mizoram, 1990-91, Department of Economics & Statistics, Aizawl.**
- Government of Mizoram, **Report on Socio-Economic Review, 1979-80 Mizoram, Bureau of Economics and Statistics, Mizoram Administration, Aizawl, 1981.**
- Government of Mizoram, **Statistical Hand Book Mizoram, 1983, 1992 & 1994, Department of Economics and Statistics, Aizawl.**
- Government of Mizoram, **Mizoram Aided School (Recurring and Non-Recurring Grants-in-Aid) Rules, 1990, Education & Human Resources Department, Aizawl.**
- Government of Mizoram, **Mizoram College (Recurring and Non-Recurring Grants-in-Aid) Rules, 1990, Education & Human Resources Department, Aizawl.**
- Government of India, **Economic Survey, 1992-93, Ministry of Finance, (Economic Division) New Delhi.**
- Government of India, **Selected Educational Statistics 1984-85 & 1985-86, 1989-90, 1990-91 & 1992-93, Ministry of Human Resource Development, New Delhi.**

Hluna, J.V., **Education and Missioneries in Mizoram**, Spectrum Publication, Guwahati/Delhi: 1992.

McCall. A.G., **Lushai Chrysalis**, Tribal Research Institute, Aizawl, 1977.

Mahajan, Baldev. et al., **Educational Administration in Mizoram** (Structures, Processes and Future prospects) NIEPA, Vikas Publishing House Private Ltd, New Delhi, 1994.

Nagar A.L. & Das, R.K. **Basic Statistics**, Oxford University Press, Delhi 1995

Prakash, Shri and Chowdhury, Sumitra; **Expenditure on Education**, (Theory, Models and Growth) New Delhi: NIEPA, 1994.

Tilak., J.B.G., 'Financing Higher Education' in S.Chitnis and P.G.Altbach (eds.) **Higher Education Reforms in India**, Sage Publication, New Delhi, 1993.

CHAPTER- V

ANALYSIS OF INSTITUTIONAL COST OF HIGHER EDUCATION

CHAPTER - V

ANALYSIS OF INSTITUTIONAL COST OF HIGHER EDUCATION

5.1 Introduction.

Educational institution such as schools, colleges and universities which are engaged in the production and supply of education are said to constitute the 'firm' of educational industry. They transform inputs into outputs, incurring costs in the process. From the point of view of institution offering education, the cost of education is constituted by the amount paid for the salaries of teachers and administrative personnel, stationery items and other current expenses including student activities and capital outlays on buildings, library books, equipments and other durable assets. The expenditure on these items which are spent for maintenance and operation of educational institution are called institutional costs and they form one of the most important components of educational cost.

The analysis of educational cost, especially institutional cost has many practical significance in educational planning and administration. Cost analysis are helpful for understanding whether resources allocated to education reflect optimal level or not, and within education sector if resources are optimally allocated between different layers of education. Furthermore, studies on unit costs help to estimate resources required for educational sector and for various sub-sectors of education.

The present chapter makes an attempt to estimate and analyse the unit cost of college education and its pattern on the basis of the data collected through a field survey of the general degree colleges in Mizoram. The study has also examined the relationship between enrolment size and unit cost of education.

5.2 Structure of College Education in Mizoram :

As given in Table 5.1, there were 29 colleges in Mizoram in 1993-94 these colleges were under the jurisdiction of North Eastern Hill University (NEHU) whose headquarter is at Shillong, Meghalaya. These colleges may be conveniently classified into four groups according to the number of courses offered, namely, (i) Arts college, (ii) Arts and Science college (iii) Arts and Commerce colleges (iv) Arts, Science and Commerce college. The total enrolment in these colleges was 6058 students with 488 teachers. Most colleges in the state were offering Arts course of studies. There were 22 colleges under this category and majority of student. i.e., 47.65 percent were enrolled in these colleges. Four colleges had both Arts and Science programme of studies with 15.76 per cent of the students enrolled in them. There was only one college offering Arts and Commerce courses with 17.25 percent of enrolment. Finally, there were two colleges offering Arts, Science and Commerce programme with a share of 19.32 per cent of student enrolment.

The above analysis shows that liberal education in Arts course dominated college education in Mizoram and the supply side

factors may be responsible for this phenomenon. The establishment and maintenance of Arts college is a relatively cheap option for the management as they require hardly anything more than the provision of teachers, classrooms and libraries. Again unlike other more advance states of Maharashtra, Gujarat, Andra Pradesh and Karnataka, Science and Commerce education were lagging behind while the authority of the state also seemed to accord less priority to these courses. The negligence of these two streams of studies may be due to low level of development, slow growth of commercial and industrial activities, the dominance of agriculture and the predominance of small and tiny units in secondary and tertiary activities in the state economy.

Table 5.1 Categorywise Distribution of Colleges in Mizoram.

College- Type	Government Colleges	Private Colleges	Total Col- lege	Total Enrol- ment	Number of Tea- chers	Student/ Teacher ratio
Arts	2	20	22	7651 (47.65)	216	35:1
Arts & Science	4	-	4	2531 (15.76)	111	22:1
Arts & Commerce*	-	1	1	2770 (17.25)	40	71:1
Arts, Science & Commerce	2	-	2	3103	121	26:1
All Colleges	8	21	29	16058	488	33:1

Note: * enrolment includes both day and morning shifts.

Out of the 29 colleges in the state, 8 were under government including one maintained by the University (NEHU). The remaining 21 colleges were managed privately by governing bodies appointed by the state government. These private colleges were of two types - (i) Private colleges under deficit grant-in-aid system and (ii) Private colleges that were not covered by deficit grant-in-aid system but may be entitled to have adhoc grant-in-aid from the government. As on 1993-94, there were 7 colleges under deficit grant-in-aid system while 14 of them were purely private colleges. Three of these colleges were affiliated to NEHU upto Pre-University level and the remaining colleges were simply recognised colleges by state government.

The student teacher ratio or the number of student per teacher varied sharply between colleges of different types. In Arts college, the ratio was 35 students per teacher while there were 22 students per teacher in Arts and Science colleges. In Arts and Commerce college, there were 71 students per teacher while the ratio was 26 students per teacher in Arts, Science and Arts colleges. The average data for the college as a whole was 33 students per teacher.

5.3 Growth trends of Institutional Unit cost :

Table 5.2 shows the growth trend of Institutional unit cost in the selected colleges from 1983-84 to 1993-94. The total expenditure increased by 427.7 per cent while the index of institutional unit cost per student increased by 194.31 per cent. The institutional unit cost at Rs. 1583 per student in 1983-84

rose to Rs. 4659 per student in 1993-94. It has been observed that the annual growth rates as given by percentage increment over the previous year had fluctuated widely from year to year. The annual growth rate increased from 22.36 per cent in 1983-84 to 33.36 per cent in 1986-87 and then rapidly fell to 4.20 per cent in 1987-88. Again, in 1988-87, the annual growth rate rose to 25.09 per cent and then it had shown a downward trend gradually. In fact, the annual growth rates had been negative in 1989-90 and 1993-94. The compound growth rate of institutional unit cost per student over the period was 10.3 per cent per annum while it was 16.3 per cent in case of total institutional cost.

The unit cost given in constant prices declined by 1.24 per cent. It was Rs.1232 per student in 1983-84 and by 1993-94, it had fallen to Rs. 1217 per student. Thus, the real unit cost had registered a negative growth rate of 0.12 per cent between 1983-84 and 1993-94(Fig 5.1).

Table 5.2 Growth of Institutional Unit Cost of Higher Education, Mizoram
(1983-84 to 1993-94)

Year	Total Public Expenditure (Rs.in lakhs)	Institutional Unit Cost in Current Prices (Rs)	Percentage increment over the previous years	Index of Growth	Institutional Unit cost in Constant prices (1980-81 prices) Rs.
1983-84	76.07	1583	-	100	1231.91
1984-85	96.52	1937	22.36	122.36	1417.09
1985-86	116.72	2338	20.70	147.69	1581.87
1986-87	159.45	3118	33.36	196.96	1978.42
1987-88	197.88	3251	4.26	205.30	1893.42
1988-89	231.64	4067	25.09	256.91	2190.09
1989-90	243.98	3659	-10.03	231.14	1821.30
1990-91	269.40	4160	13.69	262.79	1859.63
1991-92	316.17	4643	11.61	293.29	1810.84
1992-93	356.90	5370	15.65	339.23	1922.66
1993-94	401.43	4659	-13.24	294.31	1216.77
Growth rate (%)	16.3	10.3	-	-	-0.12

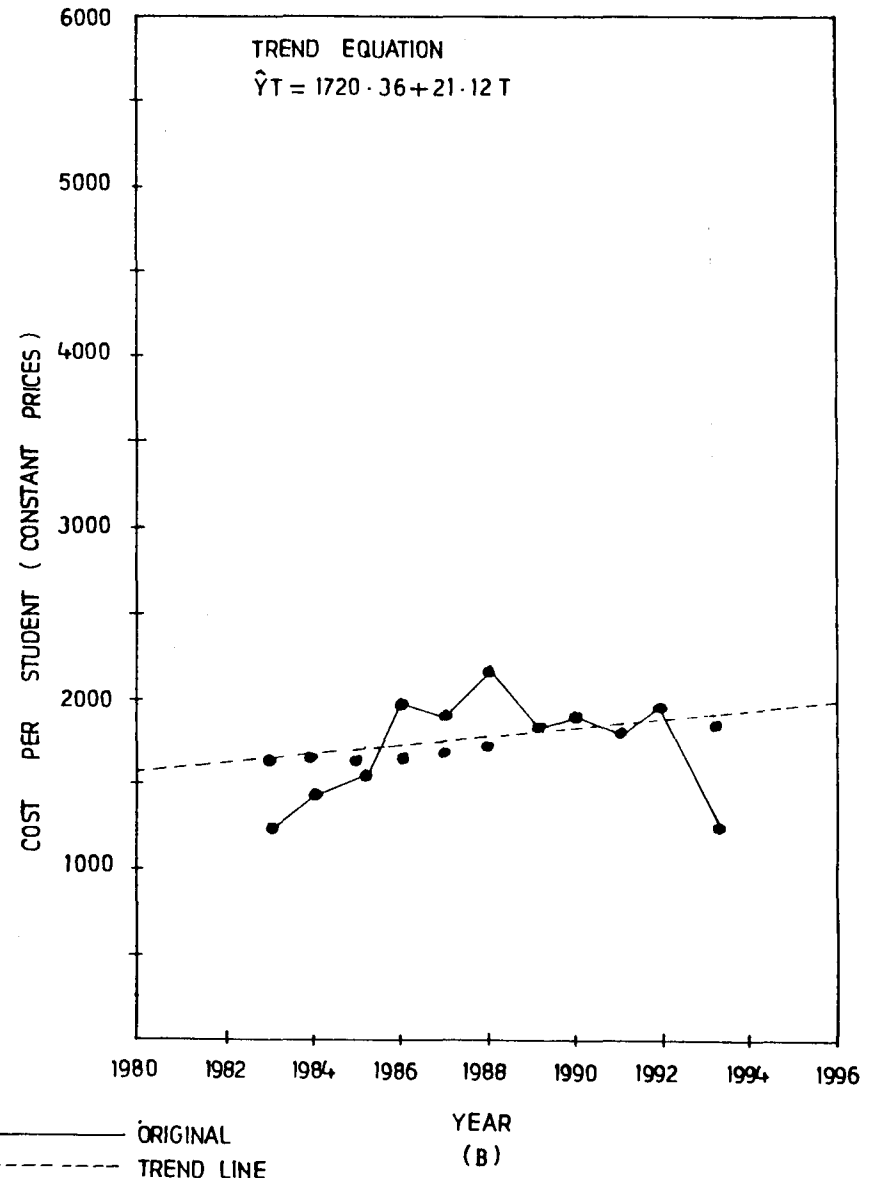
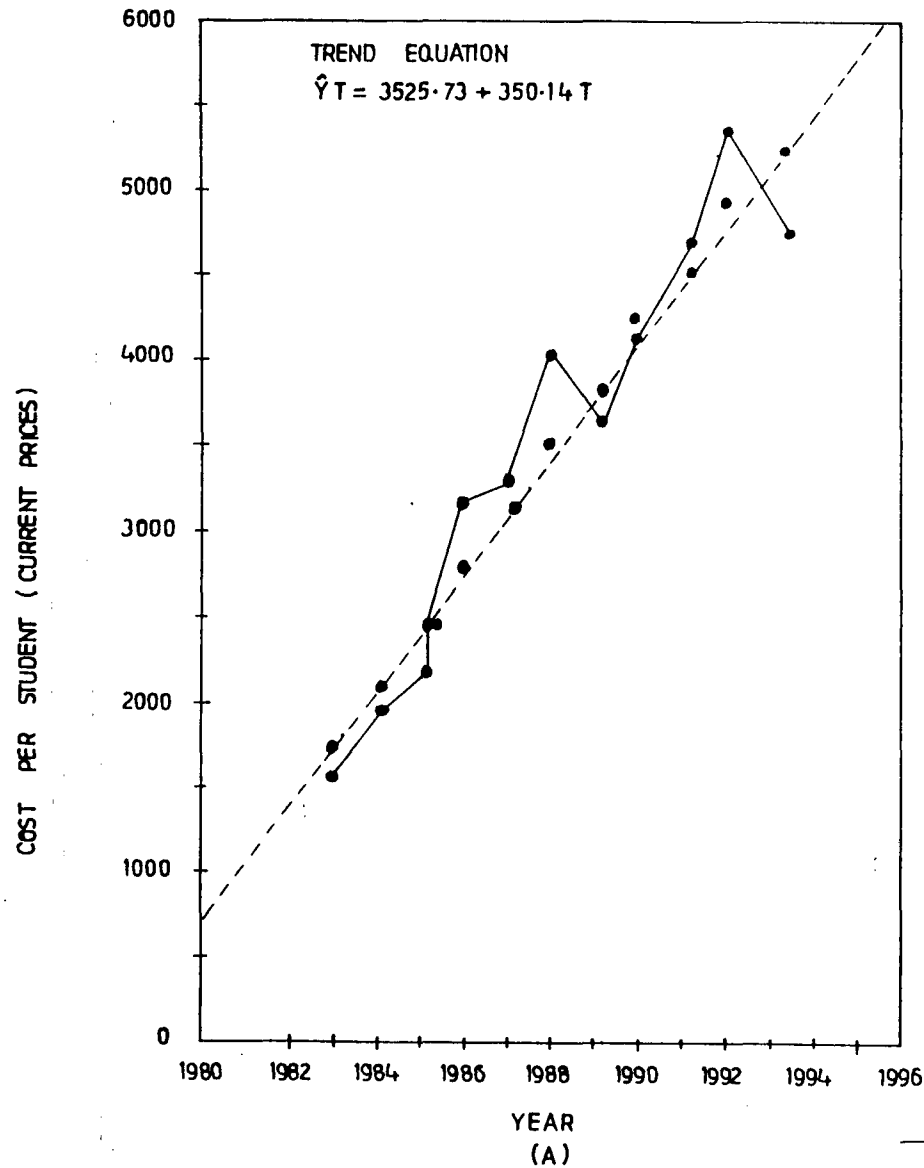


FIG 5-1 TREND OF INSTITUTIONAL UNIT COST OF HIGHER EDUCATION 1983 TO 1993
 (A) AT CURRENT PRICES (B) AT CONSTANT PRICES

5.4 Pattern and Trend of unit Recurring Cost :

The total institutional cost per student is classified into recurring and non-recurring cost. In table 5.3, the pattern and trend of unit recurring cost in current and constant prices are given. The items of recurring cost were categorised into:

(i) Teaching cost, (ii) Non-teaching cost, (iii) Common services and other recurring cost and (iv) Student service cost.

The following pattern and trend of unit recurring cost are observed :

(i) Overall nominal unit recurring cost at Rs. 1367 in 1983 rose to Rs. 3925 in 1993. Thus, nominal unit recurring cost in 1993 had risen 2.87 times its level in 1983. About 80 to 88 per cent of the total institutional cost had been spent on the operation and maintenance of the institution which were recurring in nature.

(2) Much of the total expenditure was devoted to the salaries of teaching and non-teaching staff. Teaching cost per student was only Rs. 966 in 1983-84 accounting for 61 per cent of total unit institutional cost. But it has rapidly rose to Rs. 2942 in 1993, reaching 3.08 times its level in 1983. In 1993, teachers' salaries counted for about 63 per cent of the overall unit cost, registering an increase of 2 percentage point from 1983. Teaching cost per student, recording annual compound growth rate of 10.6 per cent had a slightly higher growth rate than the overall nominal recurring cost which had increased 10 percent per annum over the period.

Table 5.3 Pattern and Trend of Unit Recurring Cost
1983-84 to 1993-94

Year	Current Prices (Rs)					Constant Prices (Rs)				
	Teaching Cost	Non-teaching Staff cost	Common Service & other recurring cost	Student Service cost	Total	Teaching Cost	Non-teaching staff cost	Common Service & other recurring cost	Student Service cost	Total
1983-84	966 (61.0)	232 (14.6)	105 (66)	64 (4.0)	1367 (86.3)	751.75	180.54	81.71	49.80	1063.81
1984-85	1100 (56.7)	275 (14.2)	173 (8.9)	434 (2.3)	1591 (82.1)	796.52	199.13	125.27	31.14	1152.06
1985-86	1340 (57.3)	311 (13.3)	225 (9.6)	101 (4.3)	1977 (84.5)	906.63	210.42	152.23	68.33	1337.62
1986-87	1765 (56.6)	473 (15.2)	347 (11.1)	113 (3.6)	2698 (86.5)	1119.92	300.13	220.18	71.70	1711.92
1987-88	1822 (56.0)	468 (14.4)	251 (7.7)	69 (2.1)	2609 (80.2)	1061.15	272.57	146.18	40.18	1519.51
1988-89	2325 (57.2)	522 (12.8)	318 (7.8)	107 (2.6)	3272 (80.4)	1252.02	281.09	171.24	57.62	1761.98
1989-90	2193 (59.9)	553 (15.1)	246 (6.7)	76 (2.1)	3068 (83.8)	1091.59	275.26	122.45	37.83	1527.13
1990-91	2590 (62.2)	648 (15.6)	341 (8.2)	76 (1.8)	3655 (87.8)	1157.80	289.67	152.44	33.97	1633.88
1991-92	2882 (62.1)	695 (15.0)	195 (4.2)	96 (2.0)	3868 (83.3)	1124.02	271.06	76.05	37.44	1508.57
1992-93	3151 (63.2)	709 (14.2)	179 (3.6)	116 (2.3)	4155 (83.3)	1128.18	253.85	64.09	41.53	1487.65
1993-94	2942 (63.1)	681 (14.6)	172 (3.7)	130 (2.8)	2925 (84.2)	768.35	177.85	44.92	33.95	1025.07
Growth rate (%)	10.66	10.3	4.6	6.6	10.05	0.20	-0.14	-5.29	-3.42	-0.41

Note: Figures in the bracket indicate percentages to total institutional cost

The increase in teaching cost may be attributed to the following factors. First, with a steady increase in enrolment, the number of teachers also goes up. Second, the automatic upward adjustments of salary of Teacher to the price rise and the adoption of the Fourth Pay Commission (1986) and later UGC Pay Scales (1991) by the state governments had invaried the wage bill on teaching staff considerably.

(3) The unit cost of Non-teaching staff increased by 10.3 per cent per annum, from Rs. 232 to 681 over the period between 1983 and 1993. The unit cost in 1993 was nearly 3 times its level in 1983 and the proportion of overall institutional cost accounted by non-teaching staff was around 13 per cent to 15 per cent during this period.

(4) Per student expenditure on common services and other recurring items increased from Rs. 105 in 1983 to Rs. 172 in 1993 registering an annual growth rate of 4.6 per cent. In 1983, these items accounted for 6.6 per cent of total institutional expenditure, but the proportion had fallen to 3.7 per cent in 1993.

(5) Per student expenditure on student activities increased from Rs. 64 in 1983 to Rs. 130 in 1993. In absolute terms, the expenditure had risen 2 times over the period. However, the relative proportion of overall cost accounted by these items declined from 4 per cent to 2.8 per cent during the same period. It had registered the annual growth rate of 6.6 per cent.

The estimates of unit recurring cost except teaching cost per student had registered negative growth-rates. Teaching cost per student in constant prices rose from Rs. 751.75 in 1983-84 to Rs. 768.35 and the absolute increase being only Rs. 16.6 per student. The unit cost of non-teaching staff had fallen from Rs. 180.54 to Rs. 177.85 approximately Rs. 3 per student in absolute value during the same period. Per student expenditure on common services and other recurring items in absolute amount had fallen as much as Rs. 36.79 per student. Lastly, the real expenditure on student service per student declined by Rs. 15.85 per student.

5.5 Pattern and Trend of Non-Recurring or Capital Cost :

Table 5.4 presents the pattern and trend of non-recurring cost per student expressed in terms of current and constant prices. About 12 to 20 per cent of the total institutional resources were devoted to non-recurring items which may be regarded as expenditure on capital formation. Per unit non-recurring cost in nominal terms increased from Rs. 216 in 1983 to Rs. 734 in 1993 with the annual growth rate being 11.7 per cent per annum. However in real terms, expenditure on capital items increased by Rs. 23.6 per student with annual growth rate of 1.28 per cent during this period. The share of expenditure on capital or non-recurring items experienced wide fluctuation from year to year during the period under study. In 1983-84, 13.7 per cent was devoted to capital expenditure ; the proportion increased to 19.7 per cent in 1987-88 and it was as low as 12.1 per cent in 1990-91. The proportion devoted to non-recurring expenditure again rose to 15.8 per cent in 1993-94.

Table 5.4 Pattern and Trend of Unit Non-Recurring or Capital Cost
1983-84 To 1993-94

Year	Current Prices(Rs)				Constant Prices (Rs)			
	Building	Library Books	Furniture Equipments	Total	Building	Library Books	Furniture Equipments	Total
1983-84	51(3.2)	96(6.1)	69(4.4)	216(13.7)	39.69	74.71	53.69	168.09
1984-85	135(6.1)	74(3.8)	137(7.0)	346(17.8)	97.69	53.58	99.20	250.54
1985-86	61(2.6)	55(2.3)	245(10.5)	361(15.4)	41.27	37.21	165.76	244.25
1986-87	241(77)	61(2.0)	118(3.8)	420(13.5)	152.92	38.70	74.87	266.50
1987-88	402(12.3)	99(3.1)	141(4.3)	642(19.7)	234.13	57.66	74.87	373.91
1988-89	443(10.9)	107(2.6)	245(6.0)	795(19.5)	238.56	57.62	131.93	428.11
1989-90	460(12.8)	33(1.0)	89(2.4)	591(16.2)	233.45	16.43	44.30	294.18
1990-91	346(8.3)	45(1.1)	114(2.7)	505(12.1)	154.67	20.12	50.96	225.75
1991-92	466(10.0)	73(1.6)	236(5.1)	775(16.7)	181.75	28.47	92.04	302.26
1992-93	598(12.0)	36(0.7)	195(3.9)	829(16.6)	214.11	12.89	69.82	296.81
1993-94	467(10.0)	63(1.3)	204(4.4)	734(15.8)	121.96	16.45	53.28	191.69
Growth rate %	22.29	-3.75	10.33	11.77	10.74	-12.84	-0.07	1.28

Note: Figures in the bracket indicate percentages to total institutional cost

The item-wise non-recurring or capital cost per student showed the following behaviour between 1983-84 and 1993-94 :

(1) Regarding the expenditure on building, it was observed that in 1983-84, all the colleges taken together spent Rs. 51 per student and this amount increased to Rs. 467 in 1993-94. Thus, nominal expenditure on building per student in 1993 had risen 9 times its level in 1983-84. On the other hand, real expenditure had increased only 3 times during this period, i.e., from Rs. 39.69 in 1983-84 to Rs. 121.96 in 1993-94.

(2) The expenditure on furniture and equipments per student in 1983-84 was Rs. 69 which rose to Rs. 204 per student in 1993-94. In nominal terms, per student cost on these items increased at the rate of 10.3 per cent annually, but in real terms, the growth rate was found to be negative at 0.07 per cent annually.

(3) Per unit cost on library books witnessed a downward trend in current and constant prices. It was Rs. 96 per student in 1983-84 in current prices and the amount had fallen to Rs. 63 per student in 1993-94; thus, registering a negative growth rate of 3.75 per cent per annum during this period. In real terms, per unit cost on the item had fallen as much as Rs. 58.26 per student and the annual growth rate being -12.84 per cent annually.

The pattern of institutional cost indicates that colleges spent a small amount on student services, library books and durable assets like furniture and equipment. This finding

confirms the general prevailing condition that colleges do not give adequate attention to developing the students' personality and college education is simply a mere instruction to equip students for university degrees. It is known that well-equipped libraries are an essential input of high quality education. However it is observed that the overall expenditure on libraries has been very low. Considering the ever growing enrolment, the number of courses and subjects offered as well the cost of standard publications, the amounts shown under Libraries cannot be said to be adequate. This is an indicator of the fact that the quantity as well as quality of academic infrastructure in these colleges was very poor and inadequate.

5.6 Net Institutional Cost Per Student :

Educational institution collects tuition and other fees from the students. From the point of view of the institution offering education, these fees are the income of the institutions. These fees which are the important component of private costs of education should be deducted from the overall institutional cost. In other words, the difference between institutional unit cost and fee receipts per student may be regarded as net institutional cost per student or the amount subsidised by the institutions for the benefits of the students. In order to analyse the trend of net cost borne by the institution, institutional cost-recurring and non-recurring and the fee receipts of the colleges were considered. Costs and receipts were expressed both at current and constant prices. The results are given in Table 5.5

Table 5.5 Institutional Unit Cost and Fee Receipt per student
1983-84 To 1993-94 (in Current and Constant Prices)

Year	Current Prices (Rs)				Constant Prices (Rs)		
	Cost	Fee	% of Fee to Cost	Net Cost	Cost	Fee	Net Cost
1983-84	1583	719.04	45.42	863.96	1231.91	559.56	672.34
1984-85	1937	798.27	41.21	1138.73	1417.09	578.03	824.57
1985-86	2338	760.57	32.53	1577.43	1581.87	514.59	1067.37
1986-87	3118	655.45	21.02	2462.55	1978.42	415.89	1562.53
1987-88	3251	627.18	19.29	2623.82	1893.42	365.28	1528.14
1988-89	4067	645.65	15.87	3421.35	2190.09	347.68	1842.41
1989-90	3659	686.56	18.76	2972.44	1821.30	341.74	1479.56
1990-91	4160	741.41	17.82	3418.59	1859.63	331.43	1528.20
1991-92	4643	791.04	17.04	3851.96	1810.84	308.52	1502.32
1992-93	4984	666.27	13.37	4317.73	1784.46	238.55	1545.91
1993-94	4659	701	15.04	3958.00	1216.77	185.08	1033.69

Table 5.5 shows that the proportion of fee to total institutional cost per student declined from 45.42 per cent to 15.04 per cent between 1983-84 and 1993-94. The table also reveals that in real terms, the amount of fee per student had declined from Rs. 559.56 in 1983-84 to Rs. 183.08 in 1993-94, thus fee receipts over the years showed a declining trend. The net institutional cost per student in current prices increased from Rs. 864 to Rs. 3958 five times over the period; however, the net cost in real terms rose from Rs. 672.34 to Rs. 1033.69 i.e., 1.5 times only in the same period.

The above analysis shows that the contribution of fee in meeting the institutional cost of college education in Mizoram was only marginal and declining. In fact, In Mizoram tuition fee was being kept at low levels and it remained unaltered for a number of years. On the other hand, unit cost per student is gradually increasing over the years, thus perpetuating cost-fee parity.

5.7 Unit cost and the Pattern of Management and Ownership:

In a mixed-economy like India, both public and private sector exist side by side. The educational sector is also no exception to this phenomenon. There are educational institutions under private and public sector. However, it has been observed that the cost of education varies sharply between private and public institutions. Generally, the cost of education in public institutions are higher than that of the private institutions. One important reason is that the resources at the disposal of public institutions are much greater than those at the disposal

of private units. The general public never bother about whether these resources are efficiently utilized and moreover nobody feels the pinch directly if they are used wastefully (Prakash, 1996)

This section presents an analysis of the cost of higher education under private and public sector in Mizoram.

The estimates of unit cost of education in Government and private colleges for the year 1993-94 are given in Table 5.6 Government Colleges were classified into University College and State Govt. Collges. The table indicates that the annual unit institutional cost per student in the University colleges was the highest amounting to Rs 8716 in 1993-94 while the cost of education in the state and private colleges were estimated Rs 4345 and Rs 3202 per student respectively. Education at the University College is relatively more costly as compared to other colleges under State and Private Colleges. The unit cost per student in the University college was 101 per cent more than the overall unit cost in the State colleges and 172 per cent more than the unit cost of private colleges. In 1993-94, unit recurring cost was estimated at Rs 8388 per student, accounting as high as 96.24 per cent of the total cost in the Unviersity College. In state government colleges, unit recurring cost has amounted to Rs 3226 per student claiming 74.22 per cent of the total institutional cost. The unit recurring cost in Private colleges has aggregated to Rs 2880 per student and the proportion of fund allocated was 84.25 per cent.

Table 5.6 Pattern of Institutional Unit Cost in Government and Private Colleges, Mizoram 1993-94

(Amount in Rupees)

Particulars	GOVERNMENT COLLEGES		PRIVATE COLLEGES	ALL COLLEGES
	University	State		
A. RECURRING COSTS				
1. Teaching Cost	5573.85 (63.95)	2651.68 (64.02)	2133.71 (66.64)	2941.85 (63.14)
2. Non-Teaching Staff cost	1943.87 (22.30)	404.49 (9.31)	341.39 (10.66)	625.81 (13.43)
3. Common Services & other recurring cost	598.97 (6.87)	92.81 (2.13)	262.45 (8.2-0)	227.71 4.79)
4. Student Services	271.79 (3.12)	76.63 1.76)	145.45 (4.54)	129.76 (2.78)
TOTAL OF 'A'	8388.48 (96.24)	3225.61 (74.22)	2883.00 (90.05)	3925.13 (84.25)
B. NON-RECURRING COSTS				
5. Building	NIL	773.03 (17.79)	208.04 (6.50)	467.15 (10.03)
6. Library Books	164.70 (1.89)	46.06 (1.06)	41.61 (1.30)	63.25 (1.38)
7. Furniture/Equipments	163.22 (1.87)	301.12 (6.93)	69.00 (2.15)	203.69 (4.37)
TOTAL OF 'B'	327.92 (3.76)	1120.21 (25.78)	318.65 (9.95)	733.98 (15.75)
TOTAL OF A+B	8716.40	4345.82	3201.65	4659.12
C. Student - Teacher ratio	18:1	29:1	37:1	27:1
D. Average Salary per Teacher Rs	1,00,626.67	86,750.00	77922.08	83378.29

Note: Figure in parenthesis indicate percentage to total

Comparison of non-recurring cost per student indicated that State Colleges allocated the highest amount on these items. State colleges spent Rs 1120 per student on capital formation in 1993-94 which was about 26 per cent of the total cost. This was mainly due to the fact that these colleges, especially those recently taken over by the state government were given more funds to built up infrastructural facilities like buildings and other durable assets such as furniture and equipments. In the University college, the amount spent was Rs 328 per student, accounting 3.76 per cent. The University College being the oldest one and well established already in terms of buildings and other physical facilities, spent less amount on capital items compared to state government colleges. Private colleges incurred Rs 319 per student and its share was nearly 10 per cent of the total cost. The low expenditure on non-recurring items in the private colleges indicated that resources available for these items were extremely limited. Therefore, the quantity and quality of these facilities were very poor and inadequate.

The item-wise unit institutional cost per student in the three types of colleges depicted the following magnitude and pattern in 1993-94.

- (i) Teaching cost per student was the highest in the University college and the least in the Private colleges. The total amount of teaching cost in the University college was Rs 5574 per student which was 2 times the unit teaching cost of State colleges and 2.6 times of the teaching cost per student in the private colleges. However, in relative

terms, the share of teaching cost per student was the highest in private colleges, accounting 66.64 per cent of the total budget while this items constituted 61.02 per cent in the State Government colleges and 63.95 per cent in the University college.

(ii) University college spent Rs 1944 per student on non-teaching staff in 1993-94 while State colleges and Private Colleges allocated Rs 404 and Rs 341 per student respectively. In absolute and relative terms, the University college set aside relatively higher proportion on this item. The share was 22.3 per cent in University college as compared to 9.31 per cent in state colleges and 8.2 per cent in private colleges.

iii) Unit cost of common services and other recurring activities was the highest in the University college and the least in the State government colleges. While University college spent Rs 599 per student, State colleges and Private colleges devoted Rs 93 and Rs 262 per student respectively. The share of this item was the highest in private colleges which allocated 8.2 per cent of the total expenditure while the proportion was 6.87 per cent in the University college and 2.13 per cent in the State Government colleges.

(iv) A relatively higher proportion was spent on student services in the private colleges. Proportion of fund that goes for this purpose was 4.54 per cent in private colleges

and only 1.6 per cent in state colleges. University college spent 3.12 per cent of their total budget on this item.

(v) State Colleges spent Rs 773 per student on construction of building in 1993-94 while this amount was only Rs 12 per student in private colleges. The university college did not incur any amount on this item. In relative terms, government colleges spent 17.79 per cent of their total budget while private colleges incurred 6.5 per cent.

(vi) The comparison of unit cost of library books revealed that the University college spent Rs 165 per student while State colleges and private colleges devoted Rs 46 and Rs 42 per student respectively. The relative share of the purchase of library books was nearly 2 per cent of the total budget in University college whereas in State Government colleges and Private college, the proportion was 1.06 per cent and 1.3 per cent respectively.

(vii) Unit cost of furniture and equipments, including laboratory equipments was the highest in the State Government colleges. They spent Rs 301 per student on this item whereas the amount for University college and private colleges were Rs 163 and Rs 69 per student respectively. In state government colleges, the amount was nearly 7 per cent of the total budget while the proportion spent is 1.87 per cent in the University college. The private colleges incurred a little more than 2 per cent of this total institutional budgets.

The above analysis shows that there was a wide variations in the unit cost of education among the colleges under different management system. This may be attributed to variation in

(i) average salary per teacher (ii) Student-teacher ratio and (iii) the amount of recurring cost. It has been observed that the university college had a high unit institutional cost per student and this can be explained in terms of higher average salary per teacher, low student -teacher ratio and greater recurring cost per student. As given in Table 5.6, the average salary per teacher in the University college was Rs 100,627 per teacher per year while the amounts for the state government colleges and private colleges were Rs 86750 and Rs 77922 per teacher respectively. Thus, the average salary per teacher in the University college was 16 per cent and 29 per cent more than the average salary of a teacher in the state government and private colleges. The high amount of teaching cost per teacher in the University College was mainly due to the existence of a number senior positions in the teaching staff and servicing of more optional subjects which have less number of students.

The unit cost was considerably influenced by the student teacher ratio. Student-teacher ratio refers to the average number of students catered by a teacher. Other things remaining the same, higher the students per teacher, lower will be the unit cost. In other words, lower the students per teacher, higher will be the unit cost.

The student teacher ratio presented in Table 5.6 indicated that university college had a low ratio i.e. 18:1 compared to 29:1 in state government colleges and 37:1 in private colleges. It has been observed that the student teacher ratio was found to be very low in the university college and as such the unit cost of education in the college was very high.

Lastly, university college had higher recurring unit cost compared to the state and private colleges. Recurring unit cost in the university college was nearly 3 times greater than that of state government colleges and private colleges respectively.

The estimates of net cost borne by the institutions under different management systems are given in Table 5.7. The table clearly shows that the amount of fee receipts per student in the private colleges was very high compared to other colleges. The average fee receipts in the private colleges were estimated at Rs 913 per student in 1993-94 while the amounts for university college and state government colleges were Rs 608 and Rs 470 per student respectively. The ratio of fee to total institutional cost per student was the lowest in the university college while the ratio was the highest in private colleges. Fees contribute nearly 7 per cent of the total institutional cost in the university college whereas the proportion in the state government colleges and private colleges were 10.81 per cent and 28.52 per cent respectively.

Table 5.7 Institutional Cost and Fee Receipts per Student in Government and Private Colleges, Mizoram, 1993-94

Management of College	Annual Institutional Cost per student (Rs)	Fee Receipt per student (Rs)	Percentages of fee Receipts to Cost	Net Institutional Cost per student (Rs)
Government Colleges				
(i) University College	8716.39	608	6.97	8108.39
(ii) State Colleges	4345.82	470	10.81	3875.82
Private Colleges	3201.28	913	28.52	2288.28
All Colleges	4659.12	701	15.04	3958.00

The net cost borne by the university college was Rs 8108 per student while the amounts for state government colleges and private colleges were computed at Rs 3876 and Rs 2288 per student. These estimates revealed that the unit cost of education per student in the university college was 2 times the unit cost of education in the state government colleges and 3 times the unit cost of education in private colleges. In other words, the cost ratios show that, for the equivalent cost of educating one student in the university college, 2 students in the state government colleges and 3 students in the private colleges could have received a year of schooling. Thus, it has been observed that the net cost borne by the institutions as well as fee receipts varied sharply among the colleges depending upon the nature of management.

5.8 Institutional cost by college - type (course-wise)

Table 5.8 presents institutional unit cost per student according to the number of course offered in the colleges. The colleges, on an average enrolled 861.6 students and the unit cost was Rs 4659.12 per annum at this level of enrolment. As given in Table 5.7 the average enrolment size had tended to increase with an increase in the number of courses and subjects offered for servicing in the colleges. The colleges which offered only one single course had much lower enrolment size while the colleges offering two or three streams of courses had relatively larger enrolment size. Colleges servicing Arts course alone had enrolment size of 543 students. Colleges servicing two streams of course, i.e., Arts and Science and Arts & Commerce had average enrolment size of 662 and 1355 students. However, it has been observed that the average enrolment size in the colleges servicing Arts & Science was relatively smaller as compared with Arts & Commerce because in case of Arts & Science colleges, they have seat capacity limitations imposed by laboratory facilities whereas in case of Arts & Commerce colleges, there was no such constraints except limitations of classroom space and number of teachers. Average size of colleges servicing the three courses had the highest enrolment of 1551 students. Thus, it was found that the average enrolment size varied between colleges of different types. The degree of variation, given by the coefficient of variation of average size as well as standard deviation were calculated at 48.15 per cent and 414.87 respectively.

Table 5.8 Average Annual Cost per Student by College-type (Course-wise)

(Amount in Rupees)

College Type	Average Enrolment Size	Student Teacher Ratio	Average Annual Salary Per Teacher (Rs)	Recurring Cost (Rs)	Non-Recurring Cost (Rs)	Unit Cost Per Annum (Rs)
1. Arts Only (N=4)	542.75	35.01:1	79806.45	2955.78 (85.13)	516.35 (14.87)	3472.13 (100)
2. Arts & Science N=3	662.33	32.57:1	78802.47	3769.50 (84.58)	687.47 (15.42)	4456.97 (100)
3. Arts & Commerce* (N=1)	1355.00	33.87:1	77075.00	3073.80 (94.59)	175.64 (5.41)	3249.45 (100)
4. Arts, Science & Commerce (N=2)	1551.50	25.64:1	90281.00	5074.77 (81.40)	1159.84 (18.60)	6234.61 (100)
All Colleges	861.60	1:28.34	83378.29	39751.13	733.98	4659.12

Note: * Refers to student enrolment in the dayshift only
 N refers to number of colleges
 Figures in the parenthesis indicate percentages.

Expenditure per student or unit cost, like average enrolment size varied between colleges of different types. The lowest cost per student was associated with Arts & Commerce college whose average enrolment size was 1355 students. The unit cost of education was the highest in case of colleges servicing the three courses of Arts, Science & Commerce and correspondingly, the average enrolment was also the highest. The degree of variability of unit cost between colleges of different types was shown by the co-efficient of variation and standard deviation which were estimated at 26.9 per cent and Rs 1253 per student.

The pattern of cost indicates that both recurring and non recurring unit cost varied widely between colleges of different types. In colleges servicing Arts course only, recurring unit cost per student was estimated at Rs 2956 constituting 85 per cent of total unit cost. In Arts & Science colleges, recurring unit cost was Rs 3769.50 per student and the proportion was 84.58 per cent of the total unit cost. The proportion of recurring cost per student was the highest in case of Arts & Commerce college. It allocated 94.59 per cent of the total institutional cost in 1993-94; but recurring cost per student was the lowest compared to other colleges amounting only Rs 3074 per student. Colleges servicing the three courses had the highest recurring unit cost totalling to Rs 5075 per student and the share was 81.4 per cent of the total unit cost. In fact, the amount for the highest recurring unit cost was greater by 72 per cent of the amount for lowest recurring unit cost.

The non-recurring cost per student in different colleges varied widely from Rs 175.64 per student in case of Arts, Science & Commerce college to Rs 1160 per student in case of Arts, Science & Commerce College. In the colleges servicing two courses i.e. Arts & Science and Arts & Commerce, the amounts were Rs 687 per student and Rs 176 per student, devoting 15.42 per cent and 5.41 per cent respectively.

The variation in unit cost can be explained in terms of the differences in the student-teacher ratio and average annual salary per teacher. As given in Table 5.7, the student-teacher ratio in 1993-94 in case of Arts, Science & Commerce colleges was 26:1 as against 36:1 in case of Arts Colleges only. Between these two extremes fall colleges servicing two streams of course- Arts & Science colleges and Arts & Commerce in which the teacher-student ratio were 33:1 and 34:1 respectively. It was observed that Arts & Commerce college which has higher students per teacher ratio also had the lowest unit cost per student. Similarly, in case of Arts, Science & Commerce colleges which had high student-teacher ratio compared to other colleges, it was found that they incurred the highest unit cost per student. The average annual salary per teacher also varied between colleges of different type from Rs 77075 per teacher in Arts & Commerce college to Rs 90281 per teacher in case of Arts, Science & Commerce college. It was found that the colleges having the lowest annual salary per teacher was associated with the lowest unit cost per student and similarly, the colleges having high average salary per teacher is associated with higher unit cost per student.

5.9 Relationship between Enrolment and Cost per student:

In this section, an attempt has been made to determine whether an increase in enrolment leads to a decline in cost per student in college education in Mizoram. For this purpose, data of institutional cost per student at current prices were converted into constant prices by using Net National Product deflators taking 1980-81 as the base year. The results of this exercise and the estimated values are given in Table 5.9. The technique of Ordinary Least Square regression method was adopted to determine the relationship between enrolment and cost per student. The results of regression analysis for the different colleges are given in Table 5:10. Since the colleges were working under different environments, the regression as well as correlation coefficients showed a wide range of variation. The following inferences may be drawn from these estimated functional relations:

- (i) the regression and correlation coefficients were negative in eight of the ten functional relations between cost and size. These functions established that there was an inverse relationship between enrolment and cost per student. However only five of the estimated functions had their regression coefficient statistically significant. These were Pachhunga University College, Aizawl College, Champhai College, Lunglei college and Saiha college which were all government colleges. In Pachhunga University college, the regression coefficient was 2.81 which means that on an average a one-unit increase in enrolment results to a fall

Table 5.9 Enrolment and Cost of Education (Observed and Estimated) per student by different colleges,
(Rupees at constant Prices 1980-81) Mizoram, 1983-84 to 1993-94

A. GOVERNMENT COLLEGES

YEAR	P.U. COLLEGE			AIZAWL COLLEGE			Z.W.COLLEGE			CHAMPHAI COLLEGE			LUNGLEI COLLEGE			SAIHA COLLEGE		
	Enrolment	Cost Rs		Enrolment	Cost Rs		Enrolment	Cost Rs		Enrolment	Cost Rs		Enrolment	Cost Rs		Enrolment	Cost Rs	
		Observed	Estimated		Observed	Estimated		Observed	Estimated		Observed	Estimated		Observed	Estimated		Observed	Estimated
	X	Y	\bar{Y}	X	Y	\bar{Y}	X	Y	\bar{Y}	X	Y	\bar{Y}	X	Y	\bar{Y}	X	Y	\bar{Y}
1983-84	693	3316	4,606.52	1872	607	610.75	49	2963	3,541.77	242	3786	2,954.09	314	2872	3,932.91	85	2051	3,098.83
1984-85	689	3867	4,617.76	1721	643	773.83	114	1806	3,376.67	250	2316	2,931.53	240	5869	4,565.61	112	1730	3,026.74
1985-86	840	3794	4,193.45	1084	1047	1,461.79	128	3164	3,341.11	221	2339	3,013.31	240	4421	4,565.61	165	3039	2,885.23
1986-87	795	4566	4,319.90	1150	1317	1,390.51	168	5008	3,239.51	238	3016	2,965.37	280	4763	4,889.21	170	4588	2,871.88
1987-88	763	5645	4,409.82	1545	1107	963.91	225	3250	3,094.73	318	2467	2,739.77	396	2971	3,231.81	223	2980	2,730.37
1988-89	816	5277	4,260.89	1267	1437	1,264.15	275	2755	2,967.73	400	2064	2,508.53	320	4076	3,881.61	224	3249	2,727.70
1989-90	913	4169	3,988.32	1303	1603	1,225.27	294	2254	2,919.47	341	2943	2,674.91	634	1270	1,196.91	325	2769	2,458.03
1990-91	988	3945	3,777.57	1111	1608	1,432.63	258	4204	3,010.91	441	2611	2,392.91	458	1835	2,701.71	338	2518	2,423.32
1991-92	1225	4064	3,111.60	1415	1055	1,104.31	262	4633	3,000.75	406	3095	2,491.61	569	1172	1,752.66	296	1817	2,535.46
1992-93	1371	2788	2,701.60	1329	1065	1,197.19	287	2452	2,931.25	535	2711	2,127.83	604	1219	1,453.41	336	1727	2,428.66
1993-94	1354	2276	2,749.11	1749	679	743.59	419	1543	2,601.97	714	1075	1,623.05	740	1327	290.61	828	827	1,115.02

B. PRIVATE COLLEGES												
YEAR	HRANGBANA COLLEGE			HNAHTHIAL COLLEGE			J.BUANA COLLEGE			LAWNGTLAI COLLEGE		
	Enrolment	Cost Rs		Enrolment	Cost Rs		Enrolment	Cost Rs		Enrolment	Cost Rs	
		Observed	Estimated		Observed	Estimated		Observed	Estimated		Observed	Estimated
	X	Y	\bar{Y}	X	Y	\bar{Y}	X	Y	\bar{Y}	X	Y	\bar{Y}
1983-84	1209	423	778.96	119	747	2,011.89	118	159	334.25	104	1003	2,678.92
1984-85	1499	408	758.66	113	909	1,973.07	132	115	341.95	112	803	2,653.40
1985-86	1967	382	725.90	109	1097	1,947.19	155	108	355.15	81	2377	2,752.29
1986-87	1989	477	724.36	116	1029	1,992.48	135	65	343.60	72	2119	2,781.00
1987-88	2250	760	706.09	84	1824	1,785.44	172	89	363.95	110	2246	2,659.78
1988-89	2014	1041	722.61	115	2143	1,986.01	185	390	371.65	78	3744	2,761.86
1989-90	2376	839	697.27	132	3379	2,096.00	186	449	371.65	164	7365	2,487.52
1990-91	2197	645	709.80	116	3740	1,992.48	371	483	473.40	150	2469	2,532.18
1991-92	2159	754	712.46	147	3357	2,193.05	197	1609	377.70	200	2694	2,372.68
1992-93	1278	1543	774.14	153	2730	2,231.87	503	556	546.00	250	1538	2,213.18
1993-94	1355	845	768.74	222	1933	2,678.30	688	517	647.75	547	790	1,265.75

Table 5.10 OLS Estimates of Functional Relation between Enrolment size and Unit Cost of College Education in Mizoram

Name of College	Intercept	Regression Coefficient	Correlation Coefficient (r)	Coefficient of Determination (r ²)	t-statistic
1. Pachhunga University College	6553.85	-2.81**	-0.6995	0.4893	-2.9367
2. Aizawl College	2632.51	-1.08*	-0.8132	0.6614	-4.1923
3. Zirtiri Womens' College	3666.23	-2.54	-0.2339	0.0547	-0.7225
4. Champhai College	3636.53	-2.82**	-0.6180	0.3819	-2.3559
5. Lunglei College	6617.61	-9.55*	-0.8974	0.8055	-6.1008
6. Saiha College	3325.78	-2.67***	-0.5459	0.2981	-1.9347
7. Hrangbana College	863.59	-0.07	-0.0848	0.0072	-0.2558
8. Hnahthial College	1241.96	6.47	0.2136	0.0456	0.6559
9. J.B.College	269.35	0.55	0.2322	0.0539	0.7160
10. Lawngtlai College	3010.68	-3.19	-0.2356	0.0555	-0.727

* significant at 1 percent probability level

** Significant at 5 percent probability level

*** significant at 10 percent probability level

in unit cost by nearly Rs 3 per student. The value of coefficient of determination (r^2) was 0.4893, which meant that approximately 49 percent of the variation in the average or unit cost was explained by changes in enrolment levels.

In case of Aizawl College, the regression coefficient was 1.08 and more than 66 per cent of the change in unit cost was explained by the regression equation. The regression coefficient of Champhai College was 2.82 and the regression equation explained a little more than 38 per cent variation in unit cost. Again in Lunglei college, the regression coefficient was 8.55 and the value of coefficient of determination was 0.8055, which meant that nearly 81 per cent of the variation in unit cost was explained by changes in enrolment. In case of Saiha college, the regression coefficient was 2.67 and nearly 30 percent of the variation in unit cost was explained by the changes in enrolment level.

(ii) In three of the colleges both the correlation and regression coefficients had negative sign but they were not significant statistically. These colleges were Zirtiri Womens' College, Hrangbana College and Lawngtlai college. The regression coefficients in these three colleges were 2.54, 0.07 and 3.19 respectively. The coefficient of correlation showed a negative and weak relationship between enrolment and cost per student in these three colleges. In case of Zirtiri Womens' college, the coefficient was 0.2339

whereas in Hrangbana College and Lawngtlai college, the coefficients of correlation were as low as 0.0848 and 0.2356 respectively. The proportion of total variation of cost explained by changes in enrolment in these three functional relations were 29.81, 0.72 and 5.55 per cent respectively.

(iii) The regression equations and correlation coefficients of the two colleges, namely Hnahthial college and J.B.College were positive but these positive coefficients were not significant statistically. In Hnahthial college, the regression and correlation coefficients were 6.47 and 0.2136 respectively and the coefficient of determination, r^2 was 0.0456, which means that only 4.56 percent of the variation in the unit cost was explained by the regression equation. The regression coefficient of J.B.College was 0.55 and the correlation coefficient was positive but very weak. The proportion of variation in cost explained by the regression equation was as low as 5.59 percent.

The diagrammatic presentation of the relationship between enrolment and cost per student in each of the college are given in Figure 5.2 to Figure 5.11.

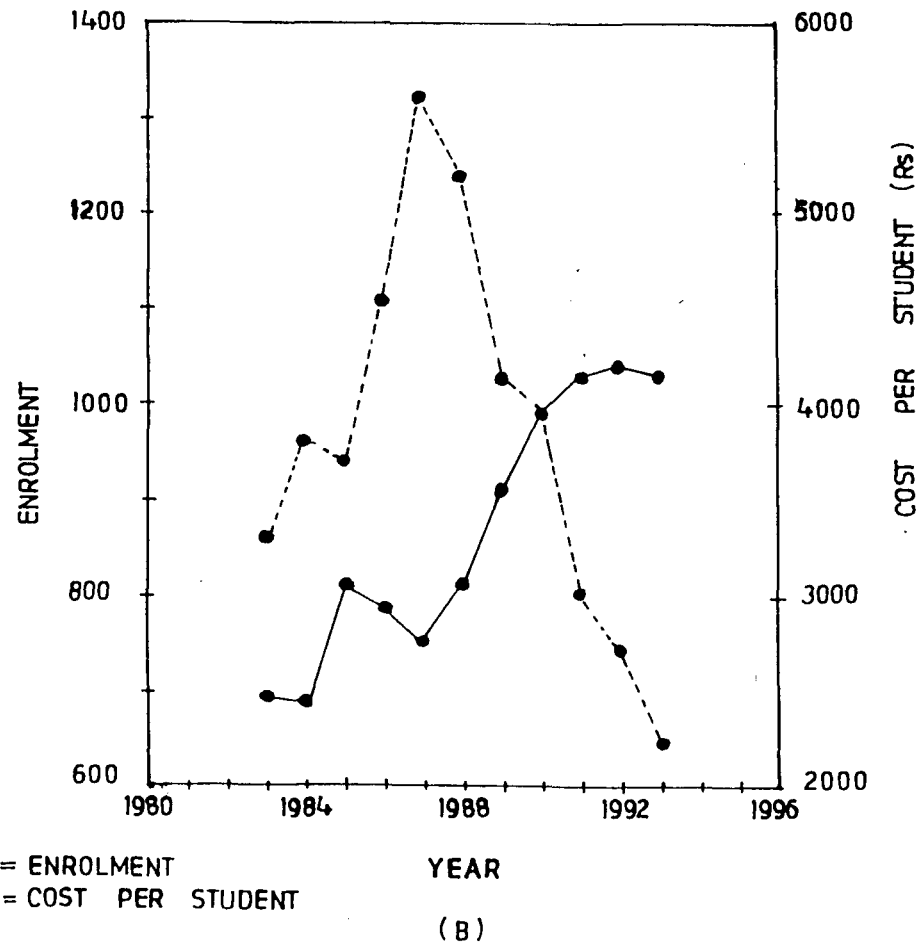
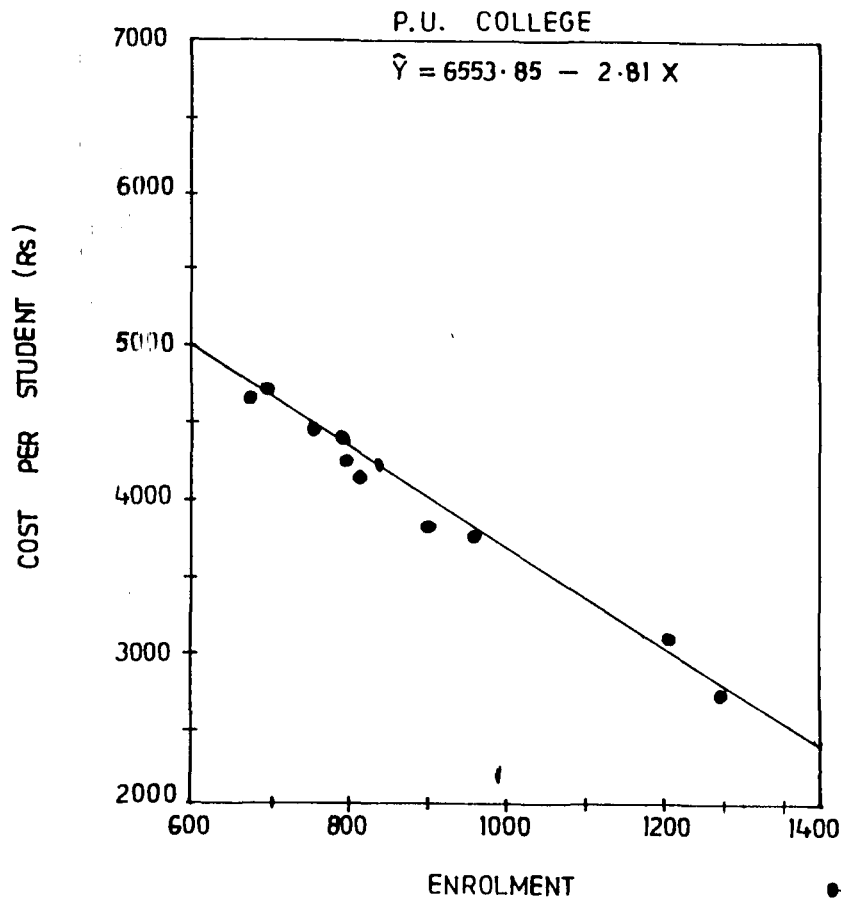
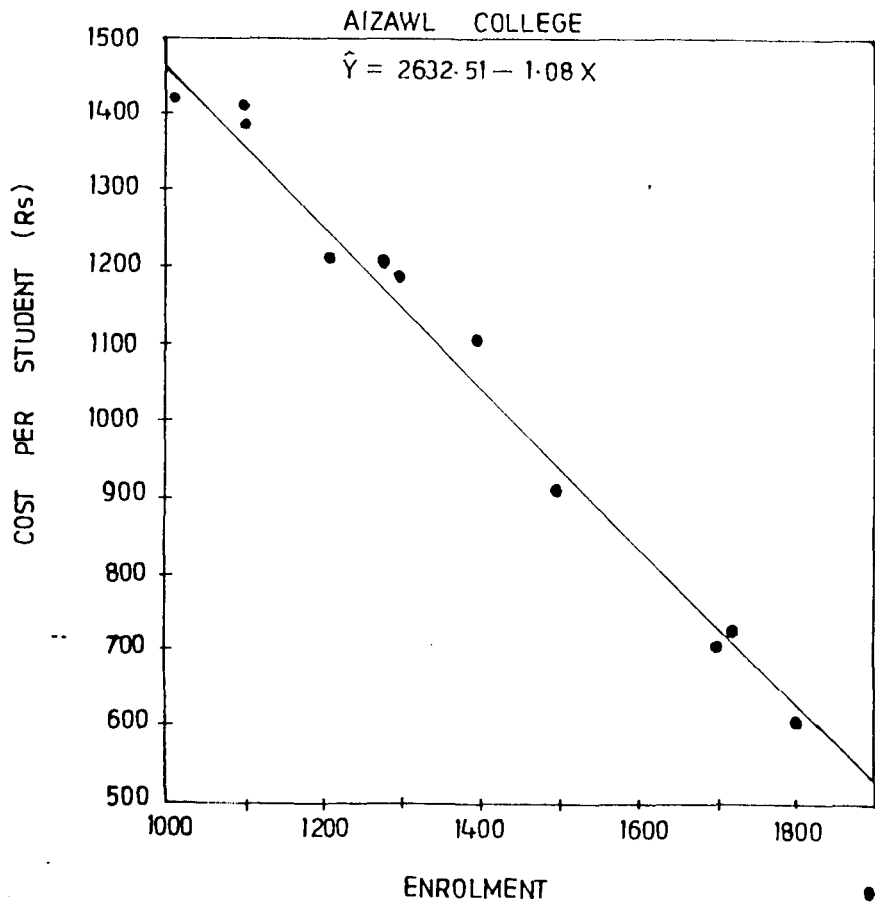
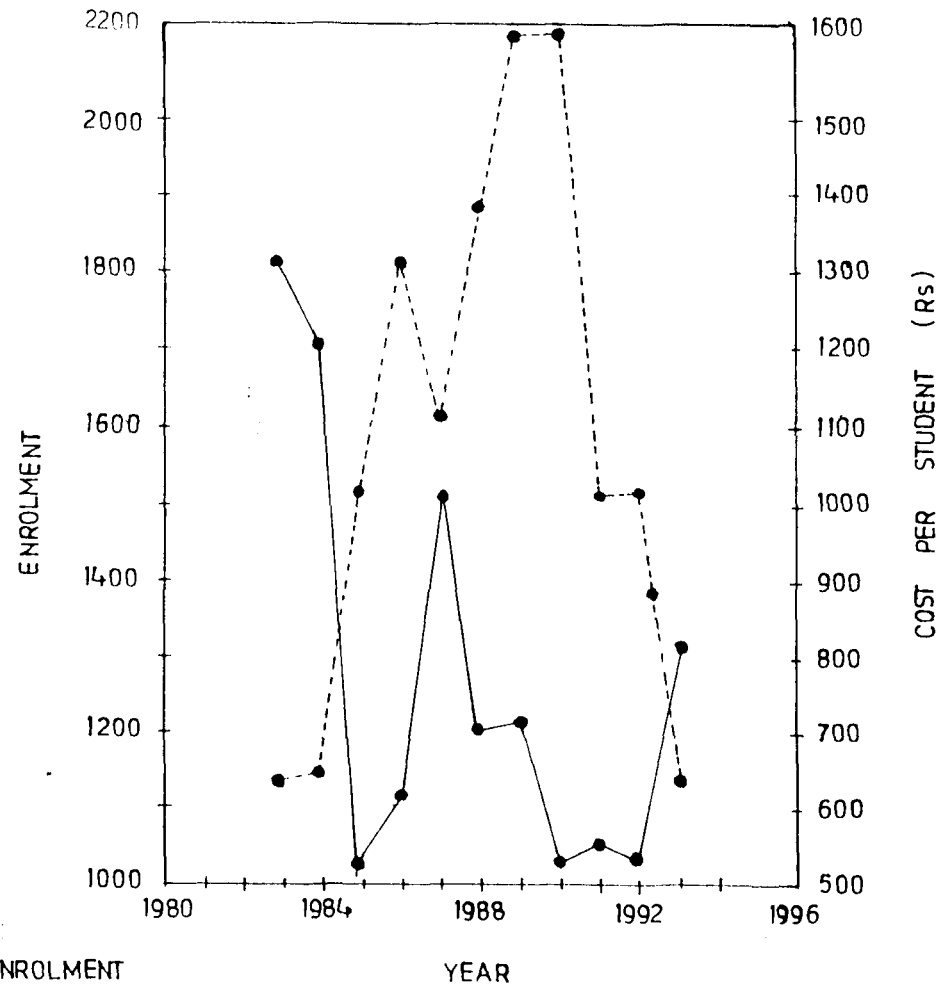


FIG 5-2 (A) REGRESSION BETWEEN ENROLMENT AND COST PER STUDENT
 (B) CHANGE IN ENROLMENT AND COST PER STUDENT, 1983 TO 1993



(A)



(B)

FIG 5-3 (A) REGRESSION BETWEEN ENROLMENT AND COST PER STUDENT
 (B) CHANGE IN ENROLMENT AND COST PER STUDENT, 1983 TO 1993

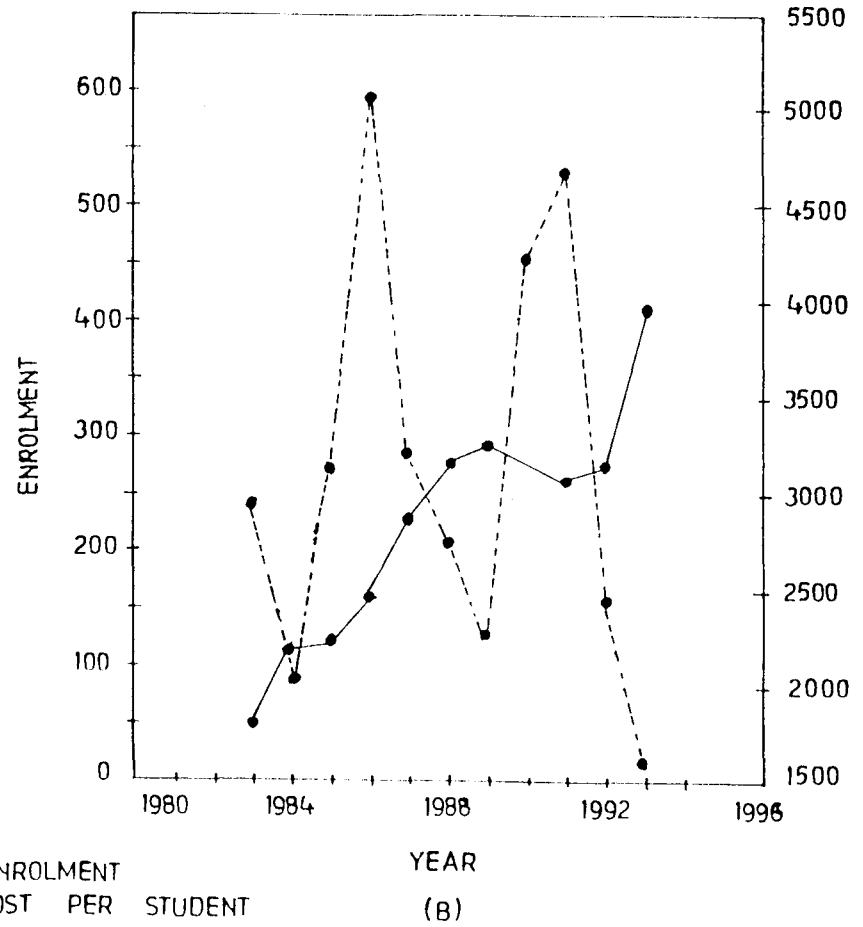
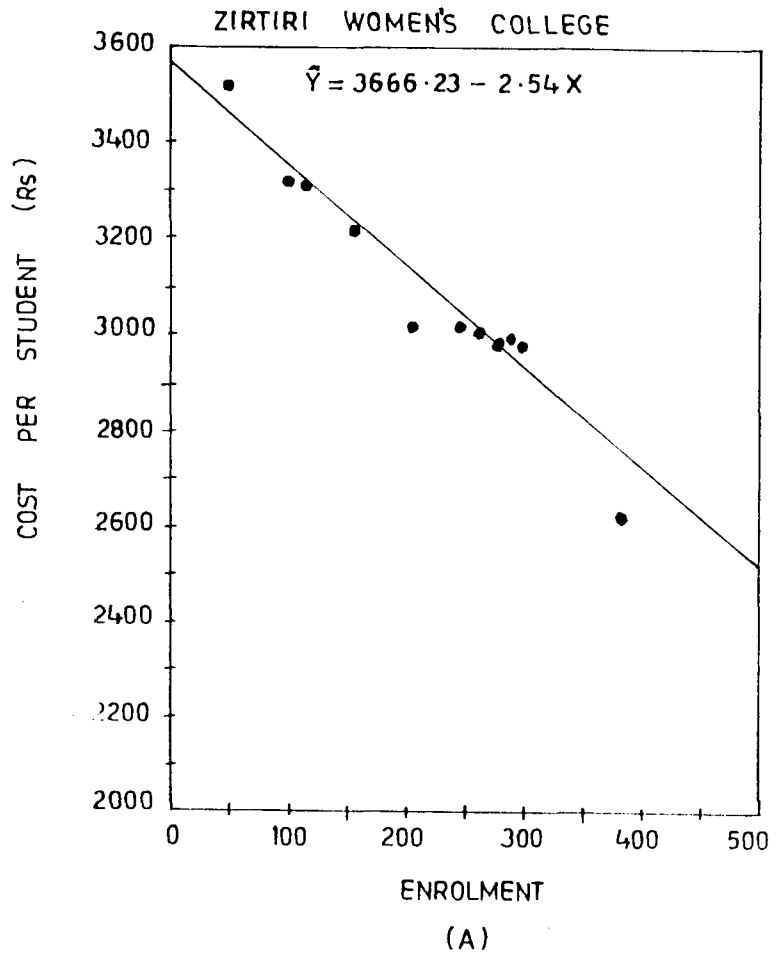
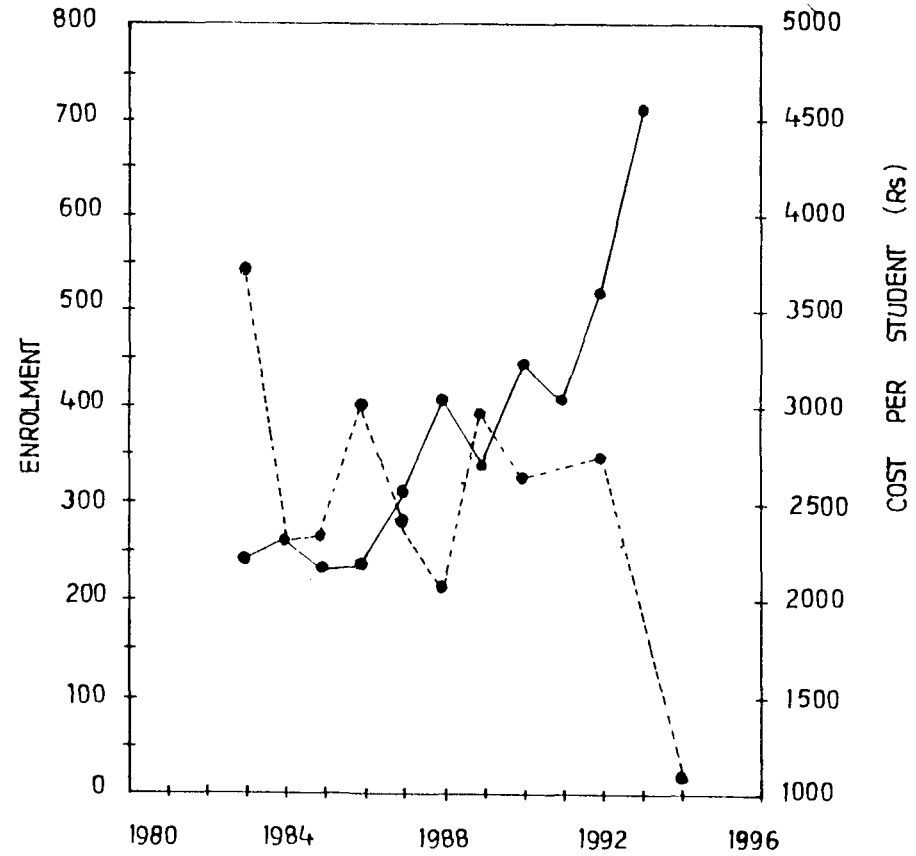
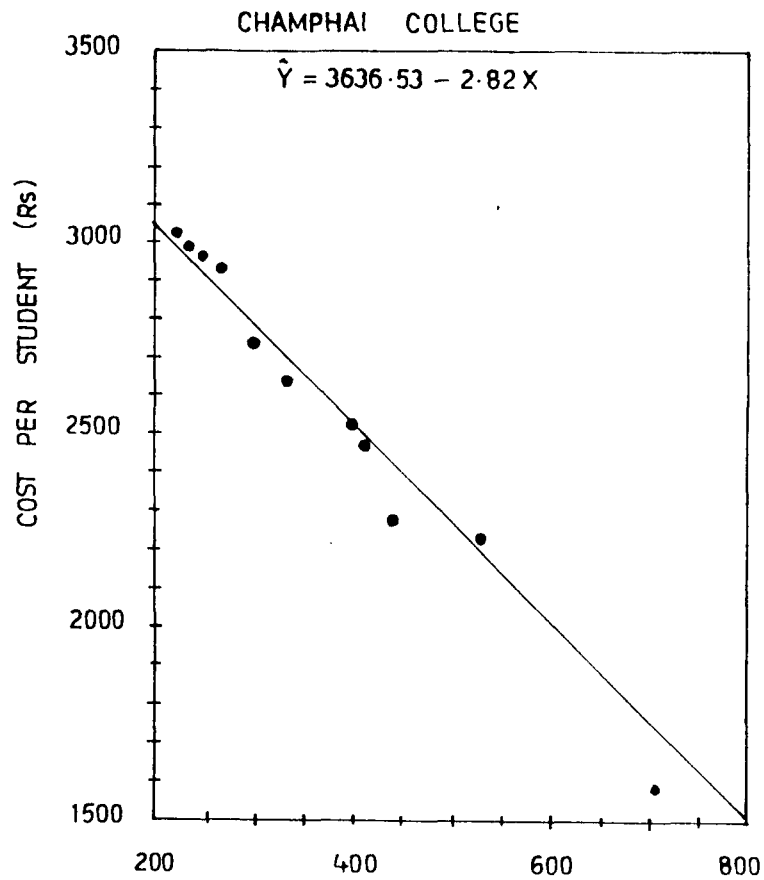


FIG 5.4 (A) REGRESSION BETWEEN ENROLMENT AND COST PER STUDENT
 (B) CHANGES IN ENROLMENT AND COST PER STUDENT, 1983 TO 1993

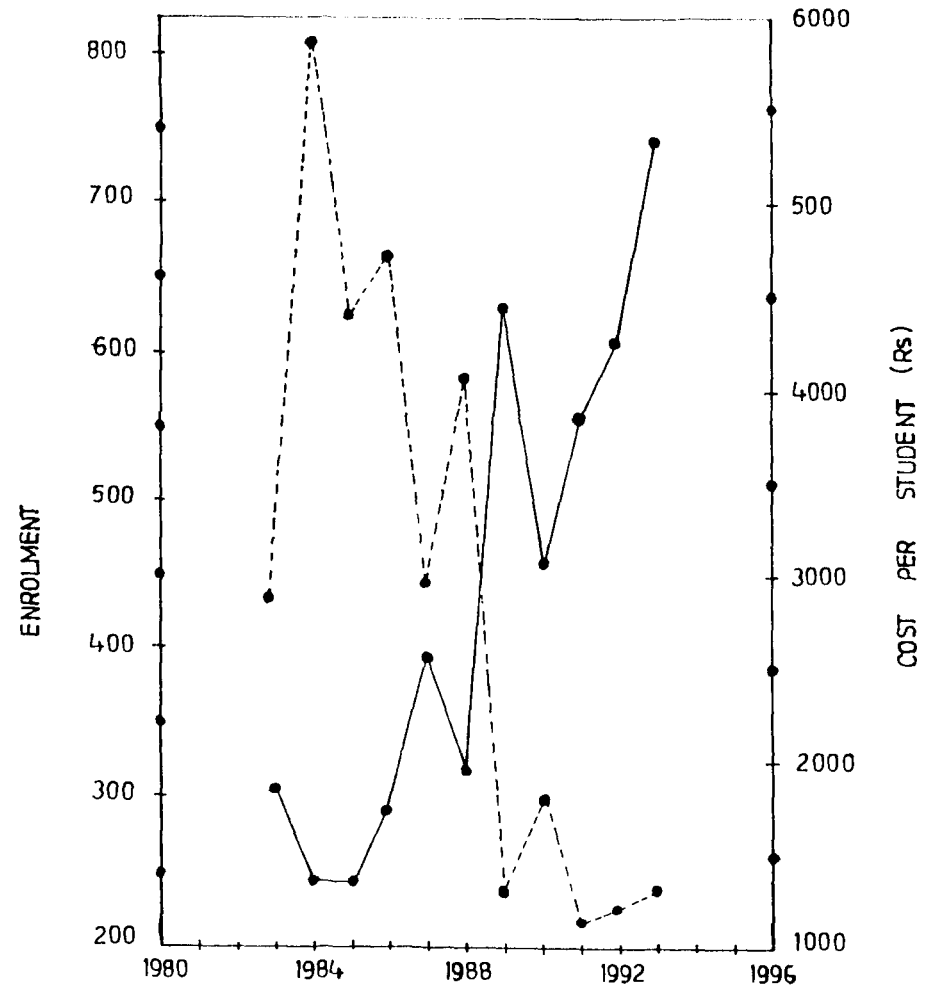
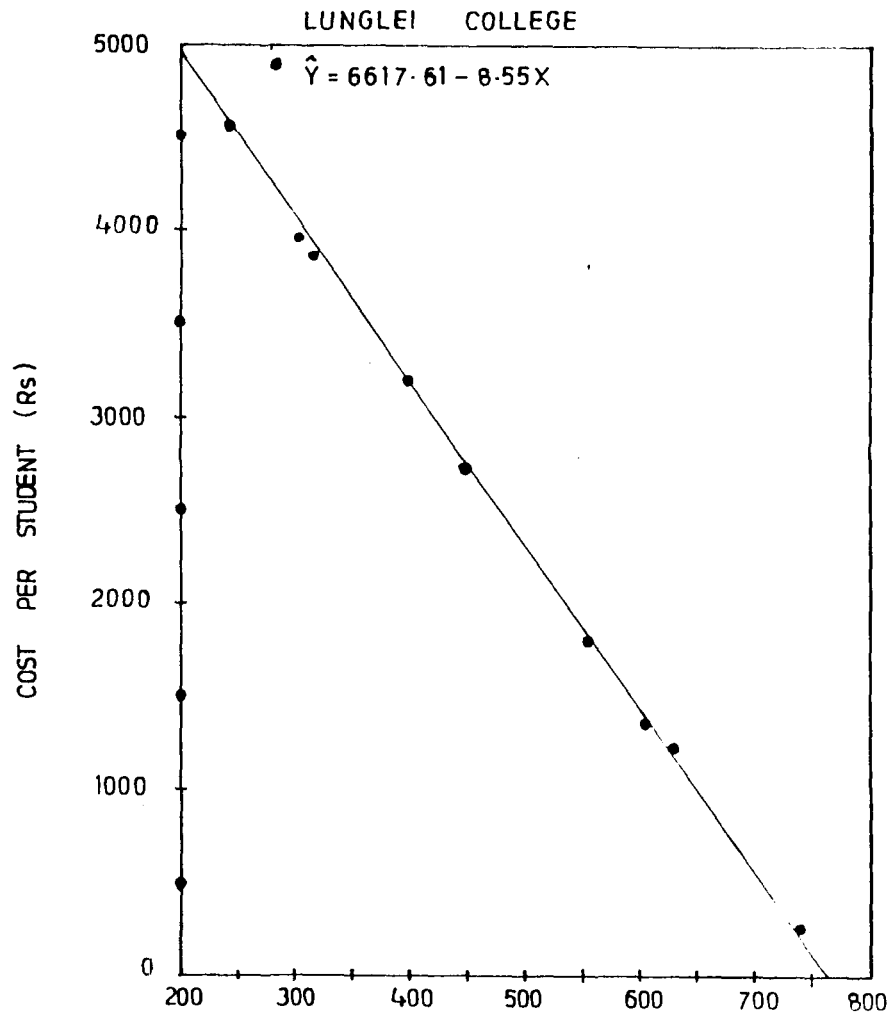


ENROLMENT
(A)

●—● = ENROLMENT
●- - -● = COST PER STUDENT

YEAR
(B)

FIG 5.5 (A) REGRESSION BETWEEN ENROLMENT AND COST PER STUDENT
(B) CHANGES IN ENROLMENT AND COST PER STUDENT, 1983 TO 1993



ENROLMENT
(A)

●—● ENROLMENT
●- -● COST PER STUDENT

YEAR
(B)

FIG 5.6 (A) REGRESSION BETWEEN ENROLMENT AND COST PER STUDENT
(B) CHANGES IN ENROLMENT AND COST PER STUDENT, 1983 TO 1993

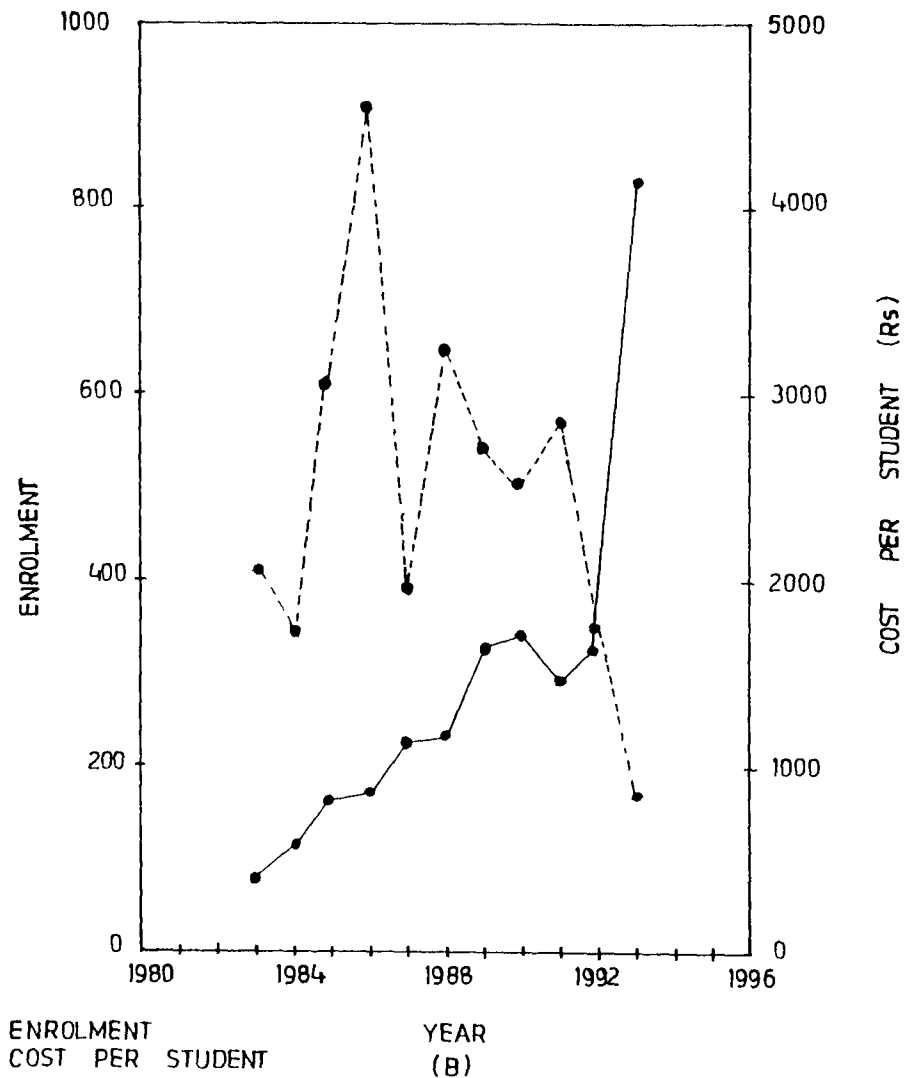
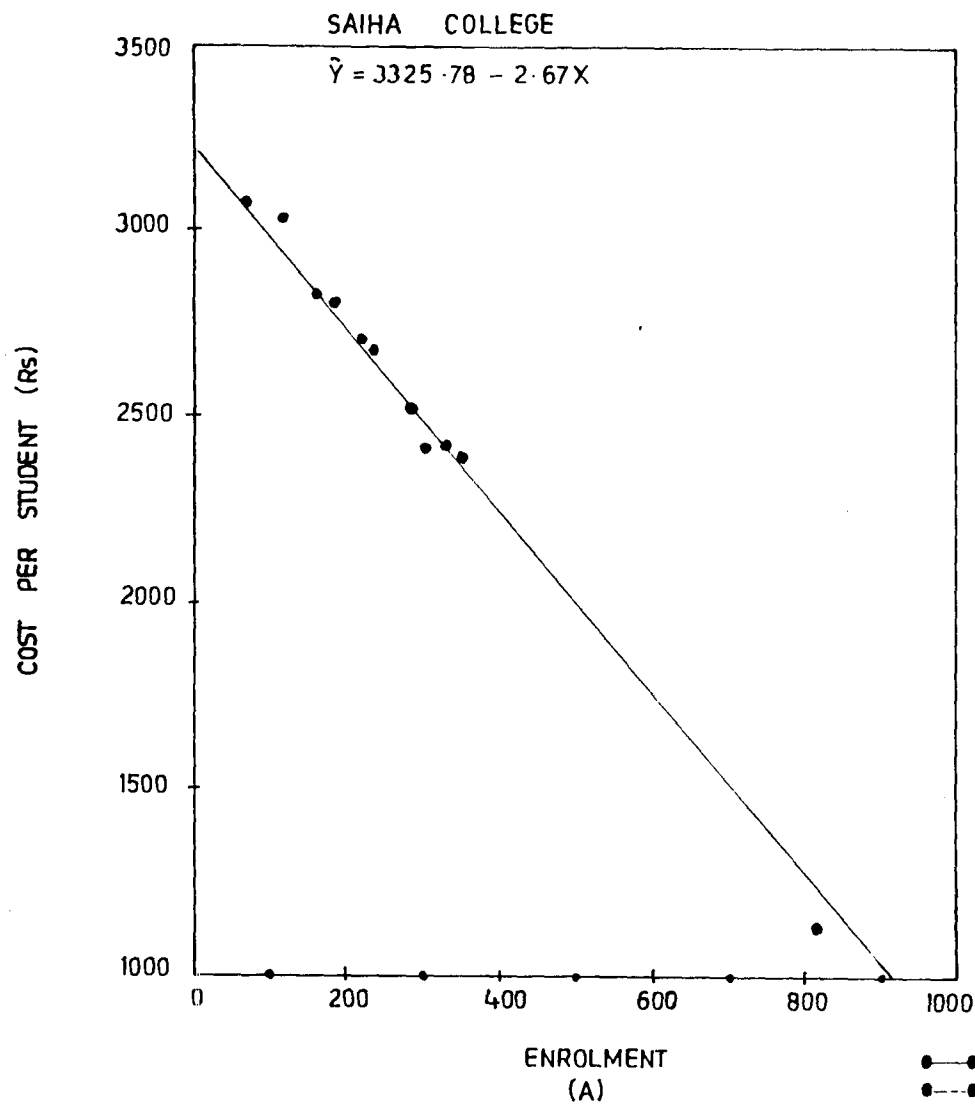


FIG 5-7 (A) REGRESSION BETWEEN ENROLMENT AND COST PER STUDENT
(B) CHANGES IN ENROLMENT AND COST PER STUDENT, 1983 TO 1993

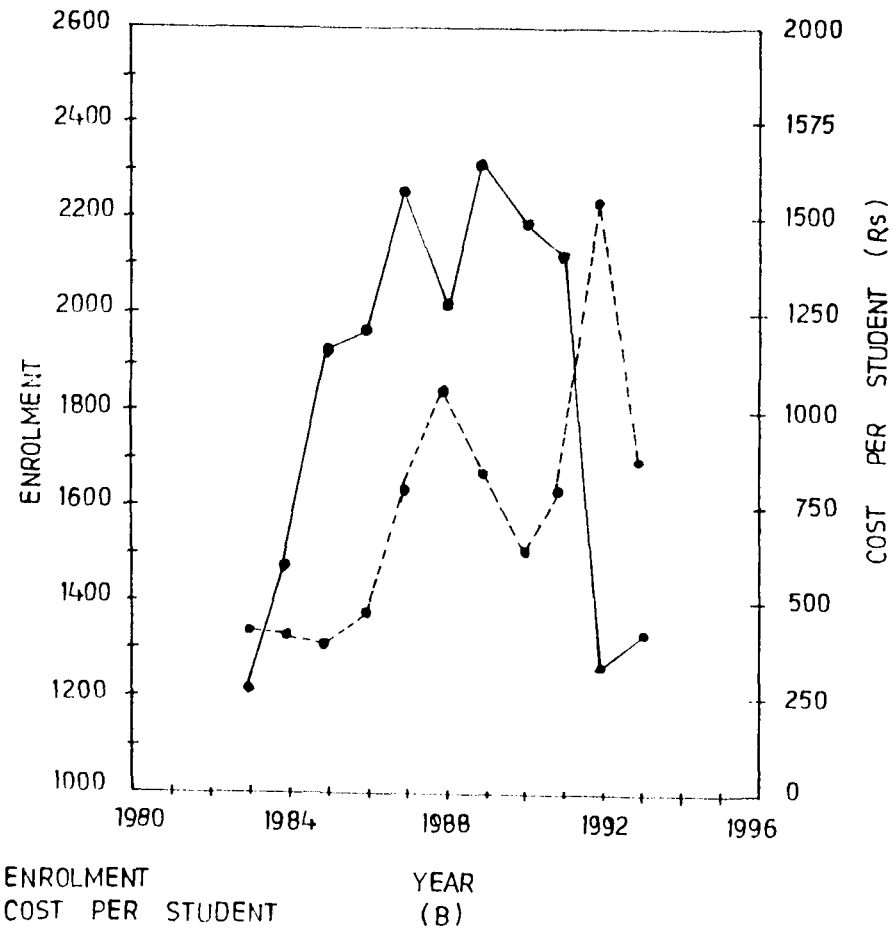
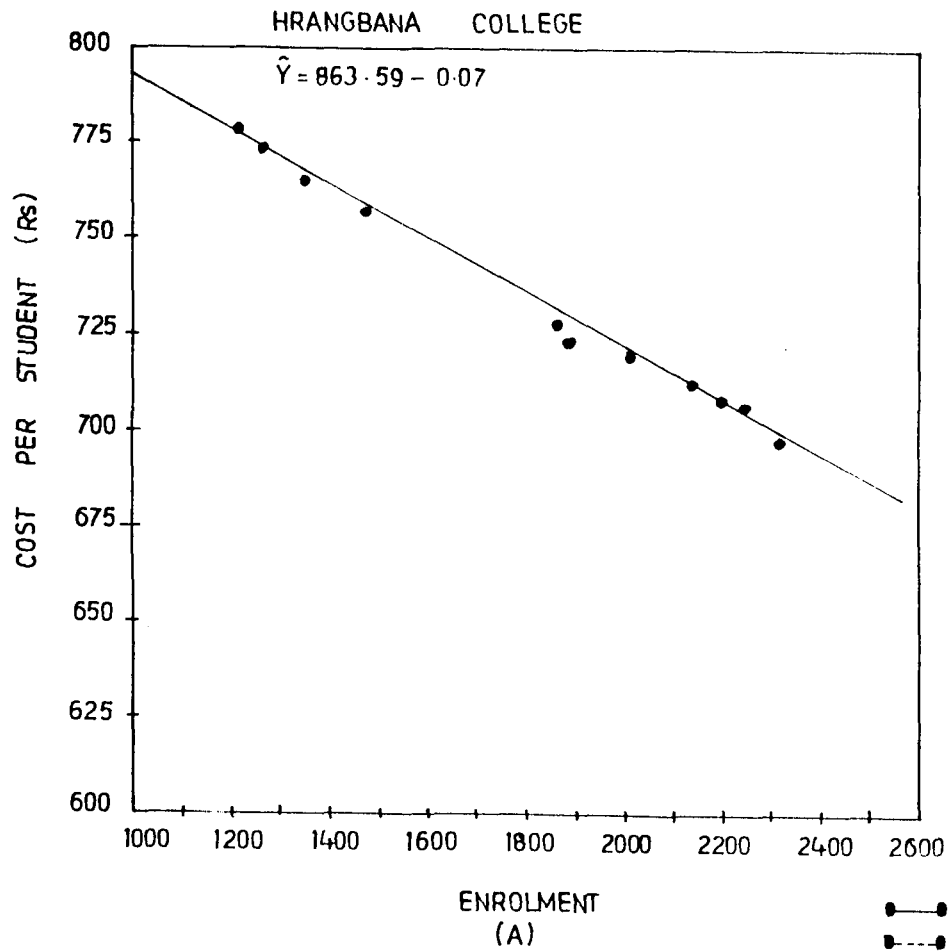


FIG 5-8 (A) REGRESSION BETWEEN ENROLMENT AND COST PER STUDENT
(B) CHANGES IN ENROLMENT AND COST PER STUDENT, 1983 TO 1993

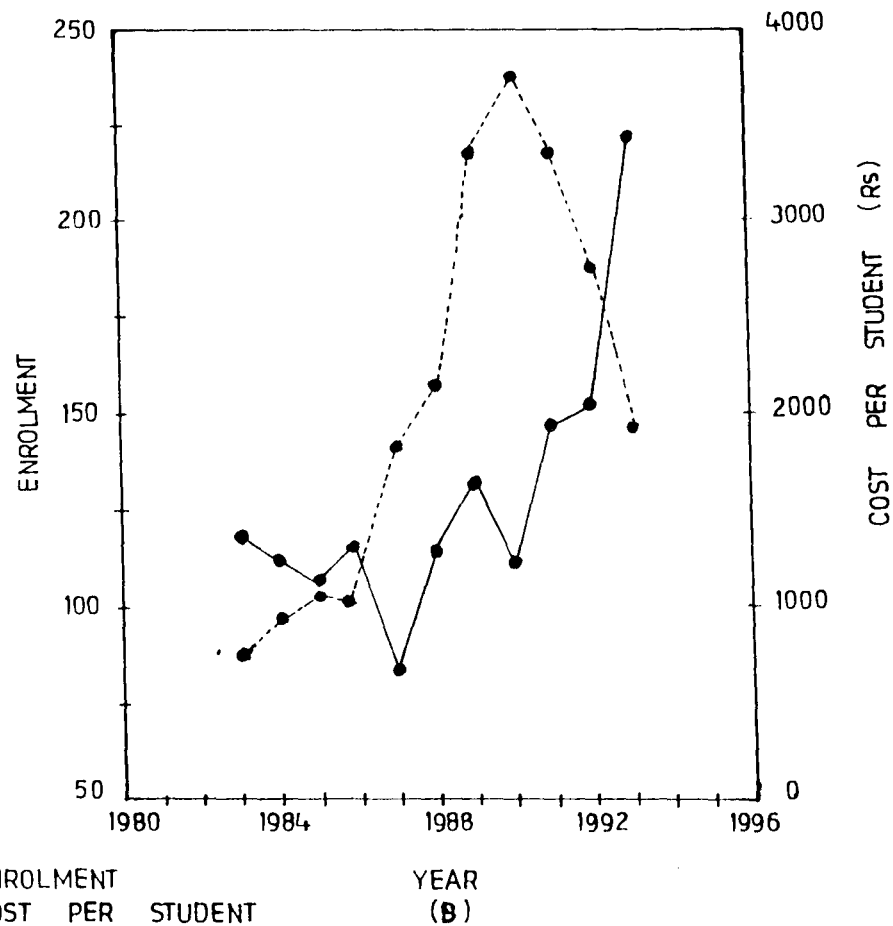
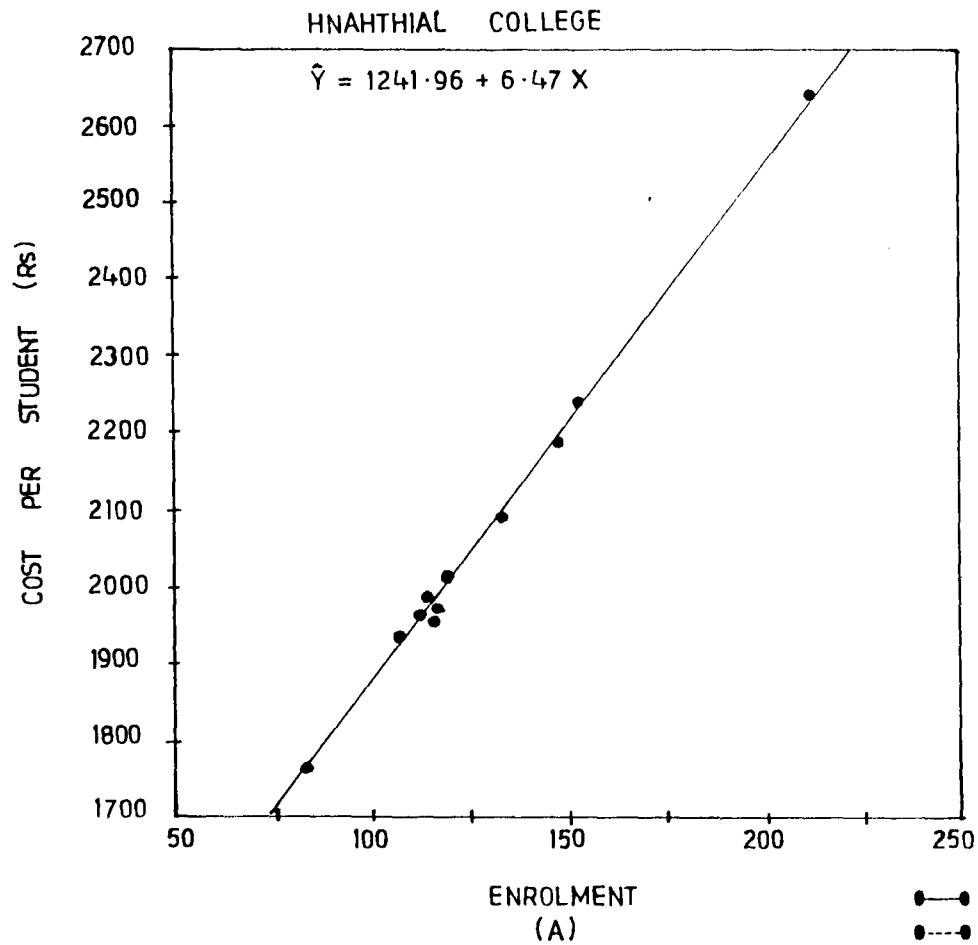


FIG 5.9 (A) REGRESSION BETWEEN ENROLMENT AND COST PER STUDENT
 (B) CHANGES IN ENROLMENT AND COST PER STUDENT, 1983 TO 1993

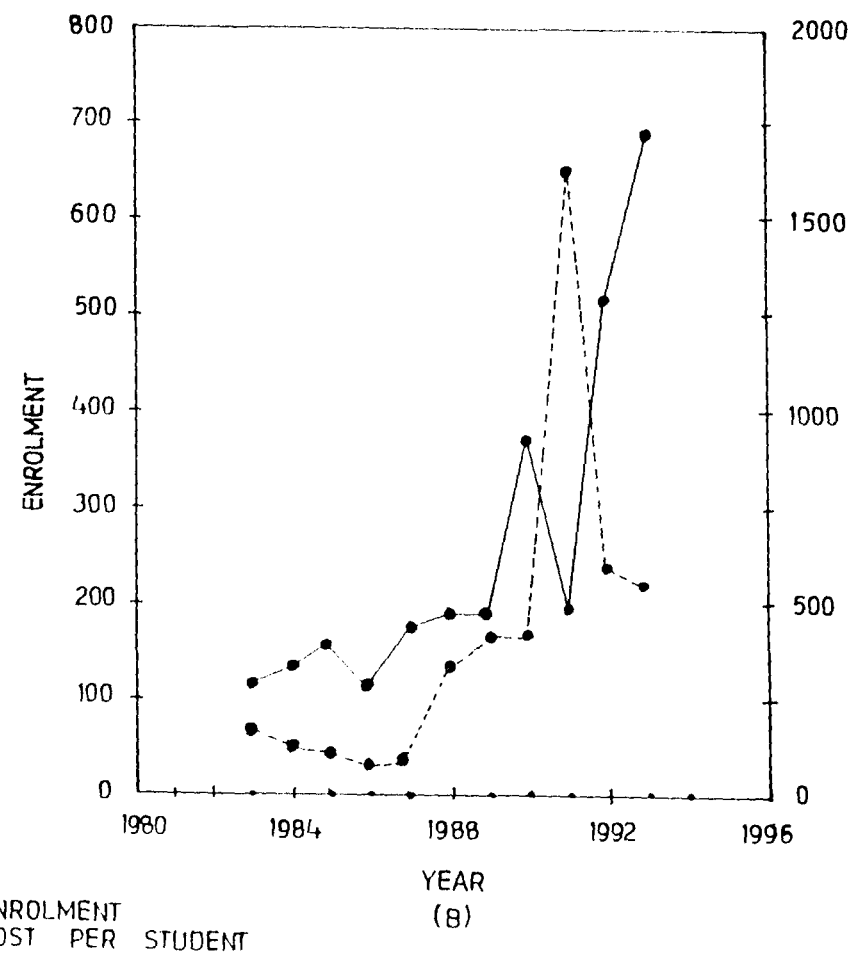
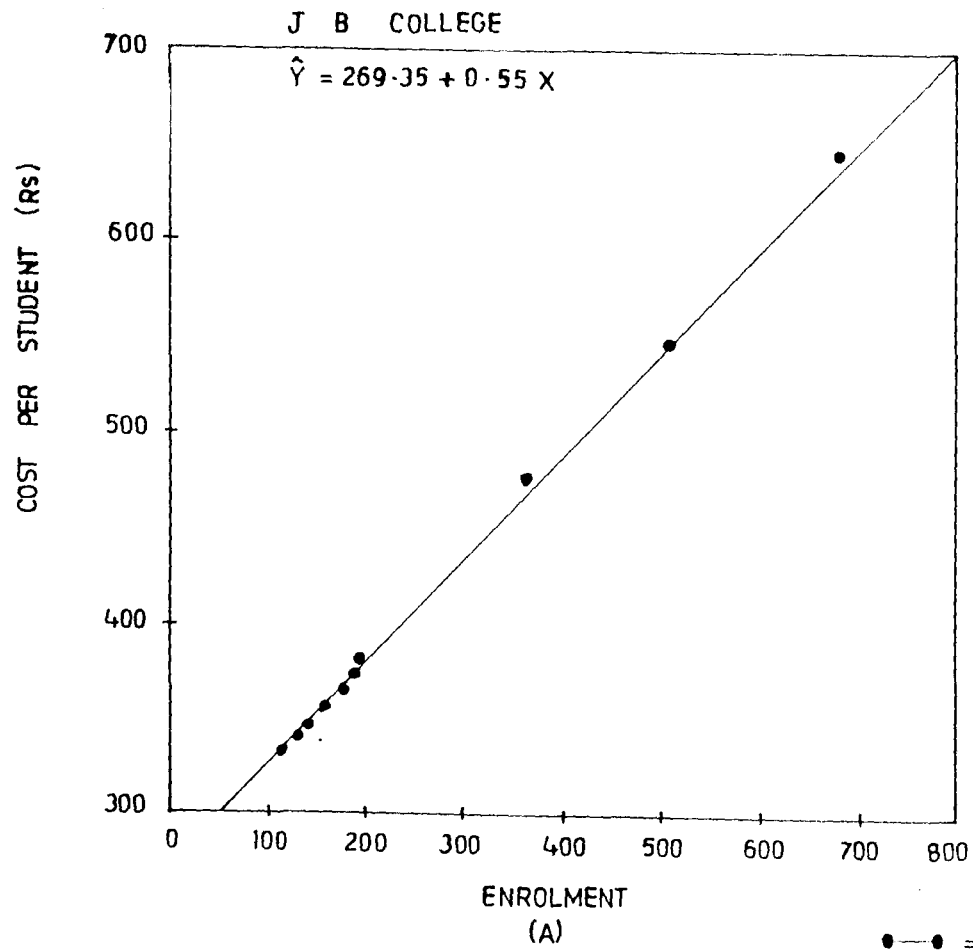


FIG 5.10 (A) REGRESSION BETWEEN ENROLMENT AND COST PER STUDENT
 (B) CHANGES IN ENROLMENT AND COST PER STUDENT, 1983 TO 1993

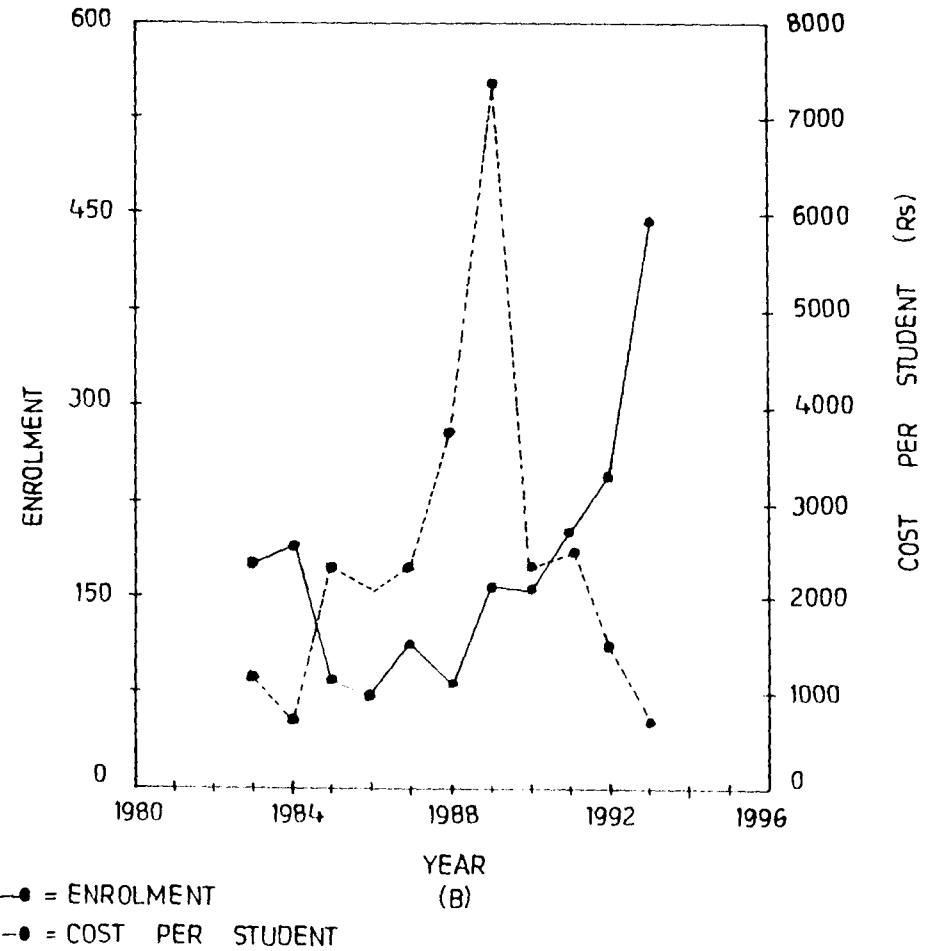
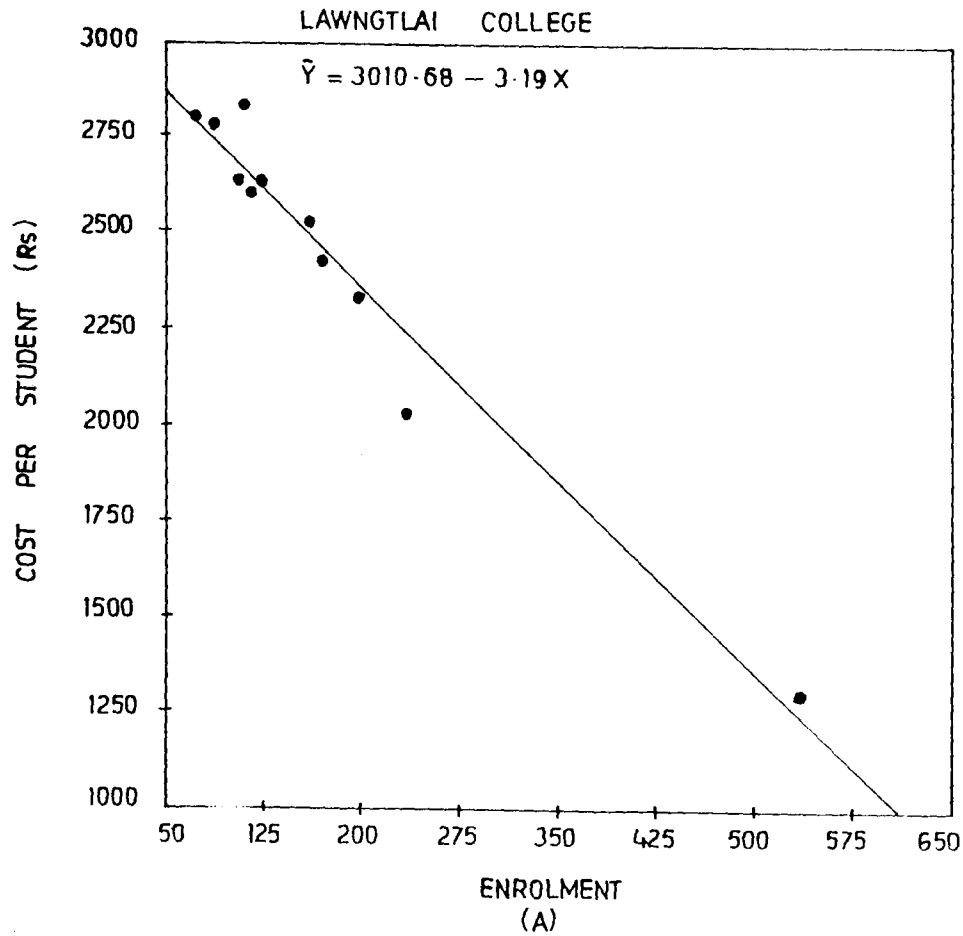


FIG 5.11 (A) REGRESSION BETWEEN ENROLMENT AND COST PER STUDENT
(B) CHANGES IN ENROLMENT AND COST PER STUDENT, 1983 TO 1993

5.10 Pooled Regression Analysis:

Since observations of each college were relatively few, it was difficult to arrive at firm conclusions regarding the relationship between enrolment and cost per student. It was, therefore, decided to pool all the observations of the colleges under consideration. The pooled data consisted of 110 observations. The scatter diagram of these observations given in Figure 5.12 shows that there was a clear and negative relationship between enrolment and institutional cost per student. It shows that as enrolment increases, cost per student has a tendency to decline.

The equation estimated from the pooled data by the technique of ordinary least squares is reported below:

$$Y = 2653.28 - 0.7734 X, \quad r = -0.3150$$
$$t = (3.4486) \quad r^2 = 0.0992$$

where Y is the institutional unit cost, X is the enrolment size of different colleges; r is coefficient of correlation, t is the test-statistic and r^2 is the coefficient of determination.

Pooled regression analysis confirmed the negative relationship between enrolment and cost per student. Both correlation and regression coefficient had the expected negative signs. The t-statistics, shown in parenthesis, indicated that the coefficient of the independent variable i.e. enrolment size was significantly different from zero. The estimated equation however explained only about 10 per cent of total variation of the unit cost of education. Corresponding to one unit increase in enrolment size, unit cost of college education declined by

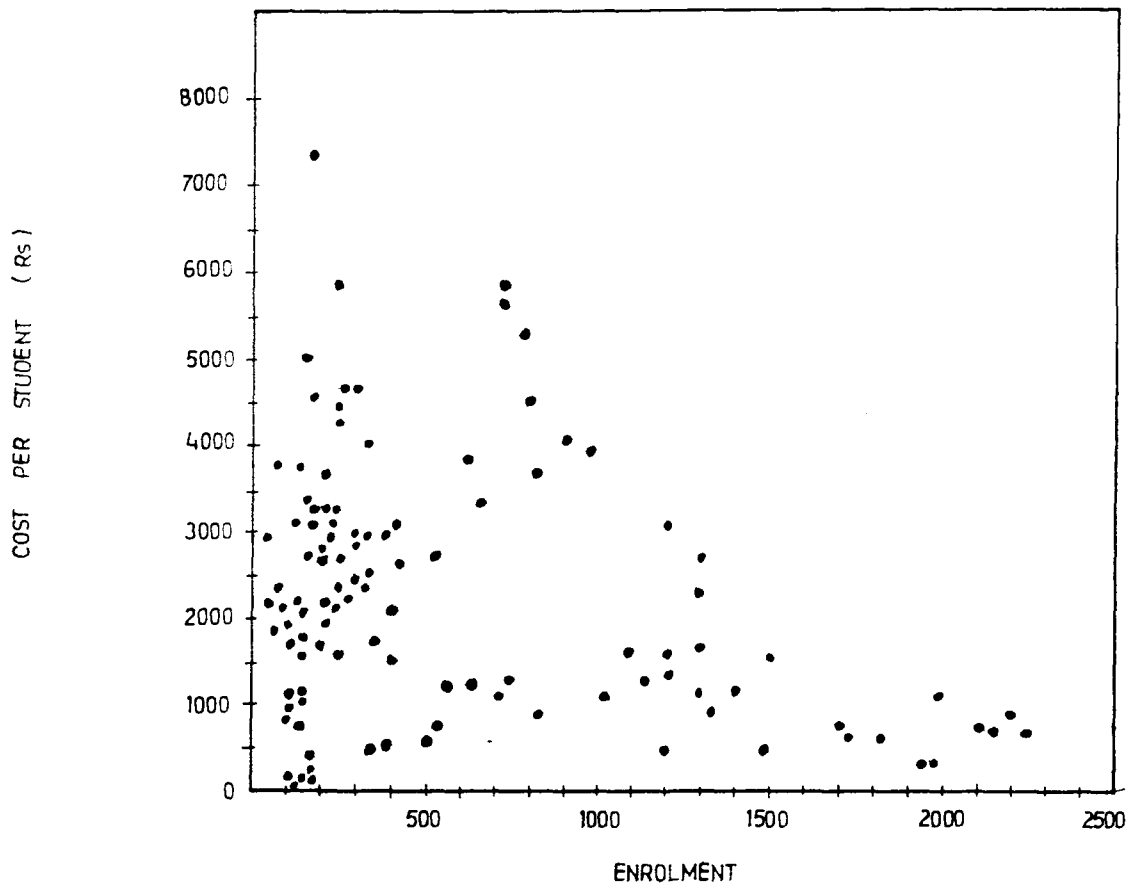


FIG 5.12 RELATIONSHIP BETWEEN ENROLMENT AND COST PER STUDENT (1980-81 PRICES) (POOLED DATA)

approximately seventy seven paisa. The empirical analysis therefore supports the hypothesis that enrolment size and overall institutional unit cost of higher education were inversely related.

5.11 College wise Optimum Size and Unit cost of College

Education:

The quadratic function had been fitted to the unit cost of the selected colleges to determine the level of optimum size in each of the college. The estimated functions are presented in Table 5.11.

Eight out of 10 curves estimated from the observations relating to each of the college were concave to the origin. These functions, therefore could not give estimates of the size of optimum enrolment corresponding to the minimum cost but these cost curves can furnish estimates of the level of enrolment corresponding to which the unit cost would be maximum. Movement into either direction from this size would facilitate reduction in the unit cost of college education.

In the two colleges, namely Lunglei college and Hrangbana college, the quadratic cost function furnished the estimates of the optimum enrolment size and the corresponding levels of minimum cost. In Lunglei college, the size of enrolment where the unit cost per student estimated at least was 642 students and the minimum cost is Rs 1149.08 per student per annum. The college was functioning optimally at this level of enrolment. The college suffers diseconomies of scale if the size of enrolment is more or less than this number.

Table 5.11 Quadratic Cost curves of different colleges included in the study

Name of College	Intercept	Coefficient of		Optimum size
		X	X ²	
1. Pachhunga University College	-1234.54	13.1782	-0.0077	856
2. Aizawl College	-198.53	2.9111	-0.0014	1040
3. Zirtiri Womens' College	1769.92	18.2501	-0.0461	198
4. Champhai College	1940.26	5.8960	-0.0097	304
5. Lunglei College	11355.85	-31.82	0.0248	642
6. Saiha College	2467.37	2.8261	-0.0059	239
7. Hrangbana College	3490.74	-3.1791	0.0009	1766
8. Hnahthial College	-4189.90	81.7458	-0.2407	170
9. J.B.College	-260.30	4.5833	-0.0052	440
10. Lawngtlai College	1312.41	13.5761	-0.0269	252
All Colleges	2345.86	0.4983	-0.0006	407

The optimum size of enrolment at Hrangbana College was estimated at 1766 students and the unit cost was only Rs 683.33 per student per annum. This college with such enrolment level was realising economies of scale and therefore, enrolment either more or less the optimum size will indicate that the college was suffering from diseconomies of scale.

The estimates given for the different colleges, revealed that quadratic cost functions did not seem to be appropriate for approximating the unit cost curves of the colleges included in the present study.

REFERENCE

Prakash, Shri, Cost of Education (Theoretical Explorations and Empirical Prognostication) Anemika Publishers & Distributors, Delhi, 1996.

CHAPTER - VI

ANALYSIS OF PRIVATE COST OF HIGHER EDUCATION

CHAPTER - VI

ANALYSIS OF PRIVATE COST OF HIGHER EDUCATION

6.1 Introduction :

Education is perhaps one of the most highly subsidised sectors of the Indian economy. The Governments, Central and State and other public bodies bear a good part of educational costs in the form of salaries both teaching and non-teaching staff, beside giving various subsidies on tuition fees, grants, scholarships and capital investment in land, buildings and other infrastructural facilities. Similarly, students or their families also spend substantial amounts of money to acquire education in different course and levels of studies which may broadly be termed as private or personal cost of education.

In chapter 5, we have examined public expenditure for the maintenance and operation of educational institutions at the college level in Mizoram. The present chapter is an attempt to analyse the cost of education borne by college students on the basis of a field survey conducted among the students of selected degree colleges.

In India, with the introduction of New Education Policy in 1986 and the adoption of New Economic Policy (NEP) in 1991, there has been an intensive discussion about the need for enhancing fees charged by educational institutions and reducing the elements of subsidy at the higher levels of education. The information with regard to the components of private cost of higher education is therefore, essential for educational planners and policy makers to assess the magnitude of private investment in

education and to determine the extent to which households will be able to meet the direct and indirect cost of education. Assessment of private cost of education also furnishes information relating to the extent of burden borne by households of different income and occupational groups as well as the amount of cost covered by subsidy in the form of grants and scholarships. Tilak and Verghese (1983) observed, "This information is absolutely essential to make proper planning of resources for education in general, and to plan for public expenditure on scholarships, stipends, etc. in particular. Ignoring these aspects is too costly, resulting in a wide gap between the expected (or planned) enrolments and actual enrolments."

Further, the analysis of direct private costs of education along with the estimates of the opportunity cost can furnish solution to some of the issues and problems encountered in underdeveloped countries such as, the early dropout rate of poor families and irregular attendance of children belonging to agricultural families during busy seasons (Blaug, 1966).

The estimation and analysis of private cost however, is one of the most neglected areas of research in educational costing in India. Only a few studies on this aspect were available in the country. The Education Commission (1964-66) attempted to estimate the cost of books, stationery and tuition fees to point out the non-egalitarian trends of education in India. The Commission observed that fees were the most regressive form of taxation which fall more heavily on the poorer classes of society and

acted as the anti-egalitarian force. K.R.Shah (1969) also estimated the private costs of elementary education on the basis of a sample survey conducted in Baroda in 1966. He classified private costs into tuition and non-tuition costs and found that non-tuition costs constituted one of the most important components of private costs of education. Chalam (1986) analysed the private cost of higher education in Andhra Pradesh and found that there was positive relationship between private cost and the parental income of the student. Salim (1993) in his study of private cost of higher education in Kerala found that the burden of the household providing engineering education to their children was only slightly higher than that of general education. In another study, P.K.Sahoo (1990) also surveyed the private cost of post-graduate arts and commerce students under Himachal Pradesh University and found that around 90 percent of students expenditure were incurred on non-tuition cost with only the remaining 10 percent on tuition cost.

The present study is an attempt to analyse the direct cost of education borne by the students in Mizoram. Direct private cost consisted of academic and non-academic costs. Academic cost included expenditure on book, stationery and fees while non-academic cost related to expenditure on food, transport & communication and personal maintenance. The net private cost i.e., the amount actually borne by the household from its own resources was estimated by deducting the contribution made by the government or other agencies by way of scholarships which may be termed as 'receipts' from the overall expenditure incurred by the household. In other words, the net private cost was obtained by

subtracting these receipts from the total direct private expenditure of the student.

6.2 Components of Direct Private Cost :

Direct private cost was defined as the cost directly incurred by a household for the education of students. It had two categories academic and non-academic costs. Table 6.1 summarizes the mean, standard deviation and co-efficient of variation(CV) of the components of private cost of higher education in Mizoram. The table shows that the average cost of buying books and stationery were estimated at Rs. 724.21 per year, while the standard deviation was Rs. 745.28 per annum. The expenditure on this item varied between a minimum of Rs. 35.00 and a maximum of Rs. 7255 per annum. The average fee paid amounted to Rs. 654.81 with a deviation of Rs. 259.64 per year. The amount of fee ranged between Rs. 237 to Rs. 1200 per annum.

Table 6.1 Components of Direct Private Costs 1993-94

Components	Mean (Rs)	Standard Deviation (Rs)	Minimum (Rs)	Maximum (Rs)	Co-effi- cient of Variation. (CV)
A. Academic Costs					
(i) Books and Stationery	724.21	745.28	35.00	7255.00	1.0291
(ii) Fees	654.81	259.67	237.00	1200.00	0.3965
B. Non-Academic Costs					
(iii) Food	7355.30	2318.26	1115.00	16160.00	0.3152
(iv) Transport & Communication	418.11	591.34	0.00	4000.00	1.4143
(v) Personal Maintenance	2833.95	1735.63	100.00	16400.00	0.6124

The average cost of food incurred by the student was Rs. 7355.30 per annum, and the standard deviation was Rs. 2318.26 among different students. The minimum expenditure incurred on food items by the student was Rs. 1115 and the maximum was Rs. 16160 per annum.

The students pay, on an average Rs.418.11 per year for transport and communication expenses. The standard deviation of the expenditure was Rs. 591.34 with a maximum of Rs. 4000 per annum. The average expenditure on personal maintenance was Rs. 2833.95 per year with a deviation of Rs. 1735.63. The expenditure on this items varied between a minimum of Rs. 100 and a maximum of Rs. 16400 per annum.

The degree of variation, as measured by the co-efficient of variation (CV) showed that the components of private cost varied between 32 per cent to 141 percent. The value of co-efficient of variation was the lowest at 31.52 percent on the expenditure of food items while the degree of variation was as high as 141 per cent in case of transport and communication. The co-efficient of variation on books and stationery was 103 per cent while the co-efficient on fees and personal maintenance were 39.65 percent and 61.24 per cent respectively.

In table 6.2, the component-wise break up of the annual average cost in different courses is presented. The following patterns have been observed :

- (i) The total average cost for all courses taken together was estimated at Rs. 11986 per year. The distribution of the

item-wise expenditure showed that books & stationery and fees accounted for 6.04 percent and 5.46 percent respectively while the share of non-academic costs such as food, transport & Communication and personal maintenance were 61.36 percent, 3.49 percent and 23.64 percent respectively. While the share of non-academic costs such as food, transport and communication and personal maintenance were 61.36 per, 3.49 per cent and 23.64 per cent respectively.

- (ii) The course-wise per capita expenditure indicated that a student of Pre-university arts, science and commerce spent Rs. 11,936, Rs. 11,519 and Rs. 11675 respectively while a student of Degree in arts, science and commerce devoted Rs. 12273, Rs. 12733 and Rs. 13313 per year respectively.
- (iii) A student of Pre - university arts spent Rs. 601 per student on books & Stationery while the average fee amounted to Rs. 632 per year. The share of these two items came to 5.03 per cent and 5.29 percent of the total private cost of education. This shows that 10.33 per cent of the total cost was devoted to academic costs. The expenditure on food was one of the most important components of private cost of education. The average cost incurred by a student of Pre-University arts on food items was estimated at Rs. 7501 per year while the average expenditure on transport & Communication and personal maintenance were estimated at Rs. 361 and Rs. 2841 per year respectively. The share of these three items were 62.84

percent, 3.02 percent and 23.80 percent of the total private cost of education.

Table 6.2 Annual Average Private Cost in different courses, 1993-94

(Amount in Rupees)

Components	Pre-University Course			Degree Course			Average for all
	Arts	Sc.	Com.	B.A.	B.Sc.	B.Com.	
A. Academic Costs							
i) Books and Stationery	601 (5.1)	874 (7.6)	628 (5.4)	1104 (9.0)	759 (5.9)	819 (6.2)	724.21 (6.1)
ii) Fees	632 (5.3)	575 (5.0)	785 (6.7)	646 (5.3)	622 (4.8)	1006 (7.6)	654.81 (5.5)
B. Non-Academic Costs							
iii) Food	7501 (62.8)	6718 (58.3)	6946 (59.5)	7328 (59.7)	7741 (60.7)	7955 (59.7)	7355.30 (61.3)
iv) Transport & Communication	361 (3.1)	479 (4.2)	409 (3.5)	421 (3.4)	580 (4.5)	876 (6.6)	418.11 (3.5)
v) Personal Maintenance	2841 (23.8)	2873 (24.9)	2907 (24.9)	2744 (22.4)	3081 (24.2)	2656 (19.9)	2833.95 (23.6)
C. TOTAL	11936 (100)	11519 (100)	11675 (100)	12273 (100)	12733 (100)	13313 (100)	11986 (100)

Note : Figures in the brackets indicate percentages to total.

(iv) At the Pre-University science, a student, on an average devoted Rs. 874 and Rs. 575 per year on books & Stationery and fees and these two items accounted for 7.59 percent and 5 per cent respectively. The average expenditure on food items amounted to Rs. 6718 per year with its share being 58.32 percent of the total private cost. Per student

expenditure on transport & Communication and personal maintenance were estimated at Rs. 479 and Rs. 2873 per annum. The percentage share of these two items were 4.16 per cent and 24.94 percent respectively. The proportionate share of academic and non-academic costs at the pre-university' science level came to 12.50 percent and 87.41 per cent respectively.

(v) The mean expenditure on books & Stationery and fees for a student of Pre-University commerce were estimated at Rs. 628 and Rs. 785 per annum. These two items accounted for 5.34 percent and 6.72 percent of the total private cost for this course. The total share of academic cost came to 12.1 percent of the total private cost. The major share of students expenditure was therefore claimed by non-academic items amounting to as high as 87.89 percent. The average expenditure on food, transport & Communication and personal maintenance were Rs. 6946, Rs. 409 and Rs. 2907 per year. The share of these three items were 59.49 per cent, 3.50 percent and 24.90 per cent respectively.

(vi) Per student expenditure on books & Stationery and fees at the Degree (arts) level were calculated at Rs. 1104 and Rs. 646 per year. These two items accounted for 9 percent and 5.29 percent respectively. The average expenditure on food, transport and personal maintenance were estimated at Rs. 7328, Rs. 421 and Rs. 2744 per year respectively. The proportionate contribution of these three items were 59.71 percent, 3.43 percent and 22.36 percent of the total

private cost for the course. The percentage distribution between academic and non-academic cost came to be 14.29 percent and 85.71 percent respectively.

- vii) The average private cost on books & stationery and fees for a student of Degree (science) were found to be Rs. 759 and Rs. 622 per year. Books and stationery accounted for 5.96 percent of total private cost for this course while the share of average fee paid by the student was 4.88 percent of the total expenditure. The mean expenditure on food was estimated at Rs. 7741 percent and this component of private cost of education had a major share of 60.79 percent of the total private cost. Other non-academic cost such as transport & Communication and personal maintenance were calculated at Rs. 580 and Rs. 3081 per student per year. The share of these two items were 4.55 percent and 24.19 percent respectively.
- viii) A commerce student at the degree level spent on an average Rs. 819 per year on books and stationery and an average of Rs. 1006 per student on fees. These two components accounted for 6.15 percent and 7.56 percent respectively. The mean expenditure on food items was estimated at Rs. 7955 per year which accounted for 59.75 percent of total private cost for this course. The average expenditure on transport & communication and personal maintenance were estimated at Rs. 876 and Rs. 2656 per year. The proportionate share of these two items were 6.58 percent and 19.95 percent respectively.

From the above analysis, the following inferences can be made about the behaviour and pattern of private cost of higher education in Mizoram:

- (i) The average private cost had increased by levels of education. This may be due to the higher tuition fees, examination fees and other fees and also the higher cost of educational materials such as textbooks, stationery and others at higher levels of education.
- (ii) The distribution of private costs between academic and non-academic cost showed that the share of non-academic costs was much higher than academic cost. The share of non-academic costs varied between 86.29 percent and 90 percent of the total private expenditure. Food constituted the most important item of private cost of higher education which was followed by expenditure on personal maintenance. The share of academic costs ranged between 10 percent to 13.71 percent of the total private expenditure—much lower than the share of food items and personal maintenance.
- (iii) At the Pre-University level, the total average expenditure incurred by a student of Arts was relatively high compared to the mean expenditure of a student of science and commerce. The proportion of non-hostellers in the Pre-University arts were more in the Pre-University science and commerce streams. The food bills for non-hostellers who lived in rented house was also high compared to the students living with parents or hostellers.

(iv) At the degree level, the mean expenditure of commerce student was the highest. This may be due to higher average expenditure on fees and food items incurred by the student of this stream. Most commerce students at the degree level were found in the private colleges where fees were relatively higher and most of them were also non-hostellers staying in rented lodges.

(v) The analysis of the components of academic cost showed that a student of science at the pre-university level devoted the highest amount on books and Stationery while a commerce student on fees. On the other hand, there was no marked variation on the expenditure of non-academic items among the students of these courses.

(vi) At the degree level, the average cost of books & Stationery was the least for science students while arts student had incurred the highest amount on these items. The average fees were the highest for the commerce students.

In table 6.3 the average private cost of education under different types of management are given. It may be noted from the table that the average private cost was the highest in the university college i.e. Rs. 12560 per year as against the cost of education incurred by the student in the state government and private colleges which were estimated at Rs. 11779 and Rs. 12162 per year respectively. Average fee per student was the highest in the private colleges. It was Rs. 913 per student in 1993-94. The average expenditure on books & Stationery in the state government colleges was the highest which amounted to Rs. 999 per year.

The average expenditure on food and personal maintenance were more or less the same under the three types of management. The per capita expenditure on food was estimated at Rs. 7711 per year in the University College while the amounts for the state and private colleges were calculated at Rs. 7070 and Rs. 7527 per year respectively. The per student expenditure on personal maintenance in the University college, State Government and Private Colleges were found to be Rs. 2891, Rs. 2803 and Rs. 2843 per year respectively.

The average expenditure on transport & communication was the highest for the student of University college, i.e., Rs 625 per year while the averages for state and private colleges were Rs. 438 and Rs. 311 per year respectively.

Table 6.3 Average Private Cost in Colleges under different management type 1993-94

(Amount in Rupees)

Components	Mangement type		
	University	State Government	Private
A. Academic Costs.			
(i) Books & stationery	725(5.77)	999(8.48)	526(4.32)
(ii) Fees	608(4.84)	470(4.00)	913(7.51)
B. Non-Academic Costs.			
(iii) Food	7711(61.39)	7070(60.02)	7527(61.89)
(iv) Transport & Communication	625(4.98)	438(3.72)	311(2.56)
(v) Personal Maintenance	2891(23.02)	2803(23.80)	2843(23.38)
G.Total	12560(100)	11779(100)	12162(100)

6.3 Socio-Economic Status and the Private Cost of Education:

The private cost of Education depends on the socio-economic status of the household concerned (Chalam, 1986; Salim, 1993). Generally, income and occupation are the major variables that decide socio-economic status. In this study, private cost was examined by the income of the household as well as occupational background of parents. On the basis of information collected from a field survey, the annual family income of students were divided into five groups: (i) below Rs. 18000; (ii) between Rs. 18000 and Rs. 36000; (iii) between Rs. 36000 and Rs. 56000; (iv) between Rs. 56000 and Rs. 78000; and (v) above Rs. 78000.

Table 6.4 Number of Students by family groups

Income Group	Annual Family Income (Rs.)	Number of Students	Percentages
Low	Below - 18000	34	9.69
Lower	18000 - 36000	98	27.92
Middle	36000 - 56000	72	20.54
Upper Middle	56000 - 78000	65	18.52
High	Above 78000	82	23.36
Total		351	100.00

For analytical convenience, these income groups may be classified into low income, lower middle income, middle income, upper income, upper middle income and high income. In table 6.4, the distribution of student according to the annual family income is given. The table shows that out of the total number of

students, only 9.69 percent belonged to families of low income group while 27.92 percent belonged to lower middle income group. The remaining students, i.e., 62 percent belonged to families of middle and high income group. This indicates that college education in Mizoram was largely dominated by students of middle and high income groups.

On the basis of parental occupational background, students were grouped into five categories. Occupational group was divided according to the National Classification of Occupation (1969). The major divisions of occupation specified in the National Classification of Occupation were: (1) Professional, Technical and Related Workers (2) Administrative, Executive and Managerial workers (3) Clerical and Related Workers (4) Sales workers (5) Service workers (6) Farmers, Fishermen, Hunters, Loggers and related workers (7, 8 & 9) Production and Related Workers, Transport Equipment operators and labourers, and (10) Workers not classified by occupations. In the present study, they have been categorised into four occupational groups: .

(i) Professional & Administrative: These occupation groups consisted of Engineers, Teachers, Medical workers, journalists, elected members in the legislative bodies and all class-1 officers in the state and central department including managerial posts in the autonomous bodies under the governments.

(ii) **Clerical and Service Workers:** These groups consisted of clerical and other supervisors, stenographers, typists and police. Pensioners and religious workers were also included in these groups.

(iii) **Sales Workers:** This group was constituted by merchants, shopkeepers, contractors, tailors and small manufacturers.

(iv) **Farmers:** This group was made up of cultivators, agricultural labourers and horticultural farmers. .lm

The distribution of students according to the occupational background of their parents given in Table 6.5 reveals that out of the total number of students, 38.46 percent belonged to Professional and Administrative group which may be regarded as high levels occupation. Clerical and Service workers constituted 27 percent while Sales workers and Farmers made up of 17.09 and 17.38 percent respectively.

Table 6.5 Number of Students by Parent al occupation.

Occupation Group	Number of Student	Percentage
1. Professional & Administrative	135	38.46
2. Clerical & Service workers	95	27.06
3. Sales workers	60	17.09
4. Farmers	61	17.38
Total	351	100.00

6.3.1 Analysis of Annual Private Cost by Income Group:

The average private or personal cost by income background is given in Table 6.6. The first income group has recorded the total average expenditure of Rs. 9777 per annum in 1993-94. The average private cost in this group ranged between Rs. 9257 to Rs. 11170 per year in the pre-university level and between Rs. 9222 to Rs. 11304 in the degree level. The average unit cost for both the Pre-university and Degree course in the second income group was estimated at Rs. 10592 per year. The unit cost in this income group varied between Rs.10467 to Rs.11454 in the pre-university level and between Rs. 9941 to Rs. 13035 in the degree level.

Table 6.6. Annual Private Cost of Education by Family Income

Income Group (Rs)	(Amount in Rupees)						
	Pre-University Course			Degree			Total
	Arts	Science	Com.	B.A.	B.Sc.	B.Com	Average
Below 18000	9257 (4.27)	10328 (1.71)	11170 (1.14)	9222 (2.00)	11304 (0.28)	11066 (0.28)	9777 (9.69)
18000-36000	10694 (13.10)	10467 (3.13)	11454 (1.71)	9941 (7.69)	10419 (1.14)	13035 (1.14)	10592 (27.92)
36000-56000	11668 (7.98)	11333 (3.13)	9961 (1.14)	12258 (6.84)	10272 (0.85)	11900 (0.57)	11667 (20.51)
56000-78000	12798 (7.98)	17119 (0.85)	10846 (1.71)	12728 (5.70)	15514 (1.71)	14059 (0.57)	13487 (18.52)
Above 78000	13723 (10.83)	12382 (1.71)	13707 (2.00)	13297 (6.27)	14750 (1.42)	13562 (1.14)	13290 (23.36)

Note: Figures in bracket indicate percentages to the total student.

The personal unit cost in the third income group was estimated at Rs. 11667 per year. The range of variation of the average cost was between Rs. 9961 and Rs. 11668 in the pre-university level and between Rs. 10272 to Rs. 12258 in degree level. The average private cost in the fourth income group in the pre-university level varied between Rs. 10846 to Rs. 17119 and between Rs. 12728 and Rs. 15514 in the degree classes. The total average cost for this income group as a whole was estimated at Rs. 13487 per year.

In the fifth income group, the total average cost amounted to Rs. 13290 per year. At the pre-university level, the range of unit cost was Rs. 12382 to Rs. 13723 per year and at the degree level, the range was found to be between Rs. 1329 and Rs. 14750 per year.

The estimates of average private cost by family income background indicated that the expenditure of the student was increasing progressively with the increase in the family income. It was observed that average personal cost was only Rs. 9777 per year in the first income group while the total average cost amounted to Rs. 13290 in the fifth income group i.e., approximately 36 percent higher than the first income group. The analysis, therefore supports the hypothesis that there was direct relationship between the private cost of education and the annual family income of the students.

6.3.2 Analysis of Private Cost by Occupation Background:

The average private cost by parental occupation background of the student is presented in Table 6.7. The children of professional and administrative group had devoted, on average Rs. 12927 per year. The range of the average cost was found to be between Rs. 1155 to Rs. 13228 in the pre-university level and between Rs. 12782 to Rs. 15597 at the degree level. The children belonging to the parents of clerical and service workers spent, on an average Rs. 11162 per year and the range of cost was found to be Rs. 9894 to Rs. 11324 per year at the pre-university level and Rs. 11355 to Rs. 13088 at the degree level.

Table 6.7 Annual Private cost by parental occupation.

Occupational Group	(Amount in Rupees)						Total Average
	Pre-University Course			Degree course			
	Arts	Science	Com.	B.A.	B.Sc.	B.Com	
1. Professional & Administration	13228 (14.53)	12659 (4.56)	11555 (3.13)	12782 (11.68)	12869 (3.42)	15597 (1.14)	12927 (58.46)
2. Clerical & Services	11015 (15.95)	11324 (3.13)	9894 (4.14)	11355 (5.70)	-	13088 (1.14)	11162 (27.06)
3. Sales Workers	12212 (7.12)	9375 (0.57)	11951 (2.28)	12315 (5.98)	13328 (0.57)	11725 (0.57)	12141 (17.09)
4. Farmers	10846 (6.55)	10194 (2.28)	12993 (1.14)	9818 (5.13)	12164 (1.42)	11630 (0.85)	10744 (17.38)

Note : The Figures in the brackets are percentages to total students

The average cost belonging to the parents of Sales workers was estimated at Rs. 12141 per year and the cost varied between Rs. 9375 and Rs. 11951 per year at the pre-university level and between Rs. 12315 to Rs. 13328 per year at the degree level. The children of farmers spent the lowest amount of all students. The average private cost for this occupational group was estimated at Rs.10744 per year. The range of average private cost was found to be between Rs. 10194 to Rs. 12993 at the pre-university level and between Rs. 9818 to Rs. 12164 per year at the degree level.

The analysis of private cost by parental occupation background indicated that the student belonging to the professional and administrative group spend more than all other categories of occupation. The results support the view that the occupation of students' parents influenced the personal expenditure of the students on education.

6.4 Net Private Cost Per Student:

Students received some amount of money from the government by way of subsidies, most notably in the form of book grants and sheduled tribe scholarships. In order to work out the actual or net cost borne by the students or their families, these receipts should be deducted from the total private cost of education. The net private cost, therefore would indicate the actual burden borne by the household for the education of their children. The calculation of net private cost assumed that all students received a scholarship and total amount per student were calculated separately for pre-university and degree classes as a whole. The estimates of net private cost are given in Table 6.8.

The average net private cost for all courses taken together was estimated at Rs. 10624 per year and the total receipts at Rs. 1438 per student, accounting 11.92 per cent of the total cost of student. The average receipts of student at the pre-university and degree level were estimated at Rs.1490 and Rs. 1352 per year. Though the monthly maintenance was higher at the degree level, it was found that the actual amount of scholarship received per student was less at the degree level. This is because the effective academic session was very short at the degree level especially in the third year degree classes in 1993-94. The range of net private cost was found to be between Rs.10029 to Rs. 10446 per year at the pre-university and between Rs 10921 to Rs 11961 at the degree level. The proportion of receipts to the total direct private cost were found to be between 12.48 per cent to 12.93 per cent at the pre-university level and between 10.62 per cent to 11.02 per cent at the degree level.

Table 6.8 Average Net Private Cost of College Education in Mizoram, 1993-94. (Amount in Rupees)

Particulars	Pre-University course			Degree			Average for all
	Arts	Science	Com.	B.A.	B.Sc.	B.Com.	
1. Average Private cost	11936	11519	11675	12273	12733	13313	12062.00
2. Receipts	1490	1490	1490	1352	1352	1352	1438.00
3. Net Private Cost (1-2)	10446	10029	10185	10921	11381	11961	10624.00
4. Percentages of Receipts to cost	12.48	12.93	12.76	11.02	10.62	10.15	11.92

The analysis shows that total receipts constituted a small proportion of the total net private cost of college education in Mizoram. It is observed that household contributed around 87 percent to 91 percent of the private cost of education at the college level in the state.

6.5 Estimates of total cost of Higher Education in Mizoram:

The total cost of education includes institutional cost, private or personal cost and opportunity cost. In the present study, an attempt has been made to estimate institutional cost and personal cost of education leaving opportunity cost for later studies mainly due to time constraint. The total cost of higher education, therefore consisted of both institutional cost and private or personal cost of education after deduction of all transfer payments like fees and scholarships i.e., the sum of net institutional cost and net private cost furnished the estimates of total cost of higher education in Mizoram. Table 6.9 summarized the total cost of higher education in Mizoram.

The total cost of education was estimated at Rs. 14582 per student per year. The net institutional cost per student was calculated at Rs. 3958.12 per year while net private cost amounted to Rs. 10624 per student per year, i.e., 2.68 times higher than the net institutional cost. In other words, only 27.14 percent of the total cost of college education was incurred by the institutional or government while nearly 73 percent was borne by the students themselves or the household concerned. The

total cost per student varied between college of different management types. In the university college, total cost was calculated at Rs. 19230.40 per student per year while net institutional cost and net private cost accounted 42.16 per cent and 57.84 percent respectively.

The total average cost was found to be Rs. 14216.82 per year in the state government colleges. The share of institutional cost and private cost were 27.26 percent and 72.74 percent of the total cost of education. In the private colleges, the total cost per student amounted to Rs 13012.65 per year and the share of institutional cost and private cost were 17.59 percent and 82.41 percent respectively. The following inferences can be drawn from the analysis:

- (i) the total cost of education per student was the highest in the university college and lowest in the private college. The cost in the university colleges was 1.35 and 1.48 times higher than the cost of education in the state government colleges and private colleges.
- (ii) The share of institutional cost was the highest in the university college and lowest in the private colleges. On the other hand, the proportion of net private cost was the lowest in the university college and highest in the private colleges.

The actual or net cost of completing a course of education is derived by multiplying the annual actual cost, i.e. net institutional and net private cost by the number of year required for each course. Under North Eastern Hill University, two years

was required to complete Pre-University course while degree course in arts, science and commerce is of three-years duration. From table 6.9 it can be observed that the cost of completing pre-university course and degree course amounted to Rs 29164.24 and Rs 43746.36 per student, therefore, the total cost required for completion of the two courses was calculated at Rs 72910.60 per student.

Table 6.9 Average Total cost of Higher Education in Mizoram 1993-94

(Amount in Rupees)

Components	Type of Management			Average for all
	University	State Government	Private	
1. Institutional Receipts	8716.39	4345.82	3201.28	4659.12
Net Cost	608.00	970.00	913.00	701.00
	8108.39	3875.82	2288.28	3958.12
	(42.16)	(27.26)	(17.59)	(27.14)
2. Private Cost Receipts	12560.00	11779.00	12162.00	12062.90
Net Cost	1438.00	1438.00	1438.00	1438.00
	11122.00	10341.00	10724.00	10624.00
	(57.84)	(72.74)	(82.41)	(72.86)
3. Total cost of Education (Net Institutional+Net Private cost)	19230.40	14216.82	13012.65	14582.12
	(100)	(100)	(100)	(100)
4. Total cost to complete the Course				
(i) Pre-university course (2yrs)	38460.80	28433.64	26025.30	29164.24
(ii) Degree (3yrs)	57691.20	42650.46	39037.95	43746.36
Total	96152.00	71084.10	65063.25	72910.60

Note : Figures in parenthesis indicate percentage to total.

However, the cost of completing the courses varied from colleges under different types of management. In the university college, the total cost of completing pre-university and degree level studies was estimated at Rs 96152 per student while the cost of education in the state government colleges and private colleges for completing the same course required Rs 71084 and Rs 65063.25 per student respectively. Thus, it is found that education in the university college was much more expensive than that of the state government and private colleges in Mizoram.

REFERENCES

- Blaug, M., *An Introduction to the Economics of Education*, Penquin, London, 1970
- Chalam, K.S., *Finances Costs and Productivity of Higher Education* Inter-India Publications, New Delhi, 1986
- Government of India, *Education and National Development* (Report of the Education Commission (1964-1966) NCERT, New Delhi, 1970.
- Government of India., *National Classification of Occupation*, Ministry of Labour, Employment and Rehabilitation, DGE & T (Occupational Information Unit), New Delhi 1969
- Sahoo, P.K., "Private Costs of Post Graduate Students of Himachal Pradesh," in J.B.G. Tilak(ed) *Journal of Educational Planning and Administration*, Volume 4, No. 3 July 1990.
- Salim, A. Abdul., "Private Cost of Higher Education in Kerela: Socio-Economic Analysis" *Journal of Higher Education*, Volume 16 No. 3 Summer, 1993.
- Shah, K.R., "Private Costs of Elementary Education" in H.N. Pandit (ed) *Measurement of Cost Productivity and Efficiency of Education*, NCERT, New Delhi, 1969.
- Tilak, J.B.G. and V.N. Verghese., "Resources for Education in India" Occasional Paper, No.2, NIEPA, New Delhi, 1983

CHAPTER - VII

SUMMARY FINDINGS AND CONCLUSION

CHAPTER - VII

SUMMARY FINDINGS AND CONCLUSION

7.1 INTRODUCTION: The study has made an attempt to analyse and estimate the unit cost of higher education on the basis of data collected from a field survey of the degree colleges in Mizoram. The study has been undertaken with the following objectives: (i) to analyse the pattern and growth of public educational expenditure in Mizoram over the period between 1972 and 1993, (ii) to analyse the sources of educational finances with special reference to college education- (iii) to estimate unit cost of college education (iv) to study the relationship between unit cost of education and enrolment size, and (v) to estimate direct private costs of higher education and assess the influence of the socio-economic status of family on the educational expenditure of children. The study is based on the data collected from a sample survey conducted in the selected colleges. The information relating to institutional cost were obtained from the colleges included in the study while data relating to the cost of Education directly borne by the students were also collected by sample survey of the students. Other data and information were collected from several published and unpublished records of the government departments and other secondary sources. The major findings of the study and its policy implications are summarised in the following sections:

7.2 Educational Profile of the State:

The history of educational development in Mizoram may be traced back to the arrival of two Christian missionaries in 1894 who introduced Mizo alphabets based on Roman script and thus laid the foundation of education among the Mizos. The year 1903 marked the beginning of a new chapter in the development of education in Mizoram as the government started giving grant-in-aid to schools maintained by the Christian missionaries. At the end of 1903, there were 15 Lower Primary schools in Mizoram. The first two Middle Schools were established in 1909 at Aizawl and Serkawn and the openings of other Middle Schools followed much later in 1944. The first High School was started in 1944 with only 56 students while the first college of the State was established much later in 1959, twelve years after Independence.

Mizoram follows the national pattern of 10+2+3 system of education as recommended by the Education Commission of 1964-66. The first ten years of education comprises three stages, namely, Primary (class 1 to IV), Middle (class V to VII), and High School (class VIII to X). The secondary school stages consisting of Class XI to XII are attached to colleges and selected Higher Secondary Schools. Colleges offer three years degree course leading to Bachelor's degree in Arts, Science and Commerce. Mizoram has no University of its own but North Eastern Hill University (NEHU) has its campus at Aizawl, the state capital of Mizoram. The campus offers post-graduate courses in few subjects like Economics, Education, English, Public Administration, Forestry, Social Works and Mizo. All the colleges are affiliated to

NEHU. There are two directorates to supervise and control the educational activities of the state. The Directorate of School Education looks after school education including teachers education and training and adult education while the Directorate of Higher & Technical Education looks after university and collegiate education including technical education.

Between 1952 and 1993, enrolment at primary level increased at the rate of 3.7 per cent per annum from 19,483 to 94,214 students. The share of enrolment, however decreased from 85 per cent to 51 per cent of the total. Enrolment at the Middle level increased from 2764 to 44969 students which was at the rate of 6.7 per cent per annum. The share of enrolment rose from 12 per cent to 24.6 per cent. The enrolment at the High School level increased from 711 to 27,784 students. The growth rate was 8.9 per cent per annum and its share in the total enrolment had risen from 3.1 per cent to 15.2 per cent.

At the college level, enrolment grew from 946 in 1971 to 16,051 in 1993. Enrolment had increased at the rate of 31.1 per cent per annum over this period and its share rapidly rose from 1.1 per cent to 9 per cent of the total enrolment.

The aggregate enrolment increased from 22,958 to 183,091 students. The annual growth rate was 5 per cent. The study shows that the growth rate of enrolment have been higher at each successive level of education as compared to the preceding level. The decade-wise overall growth rate was 8 per cent during 1951 to 1960 and this had fallen to 3 per cent during 1980 to 1993.

The study also examined the growth of educational facilities in Mizoram. The study has found that the number of teachers and educational institutions at the Primary School level rose at the rate of 5.2 and 2.7 per cent per annum respectively, while at the middle level, they had the annual growth rate of 6.9 per cent and 4.4 per cent. The growth rates of teacher and educational institution at the High School level were 10.4 and 10.1 per cent per annum respectively. At the college level, the number of teachers and institutions had registered a growth rates of 20 per cent and 10.8 per cent per annum between 1960 and 1993. The overall growth rate of teacher has been found to be much higher than the overall growth rate of enrolment and institution. Again, the enrolment rate increased at a faster rate than the growth of educational institution. This has resulted in continuous expansion and overcrowding of the institutions. The comparison of the growth rate of enrolment, teachers and institution at each level of education has indicated that there was a progressive increase with the successive level of education. The decade-wise growth rates were also found to be gradually declining over the year.

Mizoram has the second highest literacy rate in the country, next only to Kerala. According to 1991 census, the literacy rate was 82.27 per cent as against the All-India average of 52.2 per cent. The male and female literacy rate were also high compared to the national's average. Among the districts, Aizawl district ranked first in literacy (77.78%) and Chhimtuipui district had the lowest literacy rate (59.11%). Block-level data

shows that Tlangnuam block had the highest literacy rate of 94.64% while Chawngte block had the lowest rate at 24.76%. There were 12 blocks which have literacy rate higher than the overall state's average rate. The district-wise data on enrolment, teachers and educational institutions revealed that Aizawl District had the maximum share in these respects. There were 62.44 per cent of total educational institutions in Aizawl district while the share of the district in terms of enrolments and teachers were 68.59 per cent and 66.62 per cent respectively. On the other hand, Aizawl District had the least number of primary, middle and high school per thousand population. Chhimituipui district had the highest number of primary school per thousand population while Lunglei district had the highest number of middle school per thousand population. Aizawl and Lunglei districts had the same number of college, i.e. 0.03 college per thousand population. Again, Chhimituipui district had the highest enrolment per total population at the primary level while Lunglei district had in middle school level. Aizawl district had the highest enrolment per population in the High School and College level.

The study further shows that although Mizoram has made some foundation so far as general education is concerned, the state is still lagging behind in technical and professional education. In the state as a whole, there is one teacher training college, two teacher's training schools, one Polytechnic and one Industrial Training Institute. In the absence of higher education for technical and other professional studies, the state government spon-

sors students to pursue higher education outside the state in the field of engineering, medical, agricultural and veterinary sciences and other professional education by giving stipends and other financial grants.

7.3 Pattern and Trend of Public Educational Expenditure :

The study analysed the pattern and trend of public expenditure on education in Mizoram between 1972 and 1993. The study has found that public expenditure on education in nominal terms had increased at the rate of 17 percent per annum and real expenditure at the rate of 7 percent per annum between these two periods. In other words, nominal expenditure in 1993 was 32.5 times while real expenditure was 4.5 times its level in 1972. It has been observed that the growth rate of total public expenditure was higher than the growth rate of public expenditure on education. This may be taken as an indication that the educational sector had been relatively neglected and no priority was given in the allocation of public resources.

The annual growth rate of public expenditure on education had been much higher than the annual growth rate of enrolment and population. The elasticity of public educational expenditure with respect to enrolment and population was highly elastic. The elasticity has shown that corresponding to one percent increase in enrolment and population, public expenditure on education had increased by 4.75 percent and 4.88 percent respectively. Another important finding of the study was that public expenditure on education as a proportion to the total revenue expenditure had declined from 18.2 percent in 1972 to 15.3 percent in 1993.

The distributive pattern of public expenditure on education indicates that the share of elementary education has increased from 37.8 percent to 55.5 percent while the share of secondary education declined from 47.8 percent to 22 percent. The expenditure on college education increased from 4.8 percent to 11.8 percent during the same period. Public expenditure on elementary and college education has increased faster than the growth rate of overall educational expenditure of the state. Expenditure on college education had the highest growth rate while secondary education had the lowest growth rate. Public expenditure on elementary education in nominal terms increased 47.8 times between 1972 and 1993 but only 6.6 times in real terms. Expenditure on secondary education increased 15.02 times in nominal terms but only 2.1 times in real terms. Finally, expenditures on college education have increased 80.4 times but only 11.1 times in real term.

The proportion of annual plan expenditure devoted to educational sector has declined between 1972 and 1993. In 1972, the plan resource allocated to education was 9.6 percent of the total plan resource and this share had fallen to 6.5 percent in 1993. The intrasectoral allocation of plan expenditure in the Seventh Plan (1975-1990) and the proposed outlay in the Eight Plan (1990-95) indicated that the major plan expenditure on education had been earmarked for elementary education followed by secondary education and then higher education. The share of technical education had marginally increased from 3.1 percent in the Seventh Plan to 3.6 percent in the Eight Plan.

Linear curves had been fitted to estimate the time series data of public educational expenditure curves relate to the data given in current and constant prices for each level of education. The estimated functions exhibited an upward trends over the years. In current prices, the proportion of variation explained by the functions ranged between 67 to 87 percent of the total change in public expenditure on education. In real terms, the functions explained 48 percent to 92 percent of the total change in public expenditure on education. The regression coefficients of the estimated functions in current and constant prices were also statistically significant.

7.4 Unit Costs of Education :

Estimates of unit costs of education from state level data have been done. The estimates revealed that the unit cost of education per year increased for all levels of education between 1976 and 1991. The estimates also showed that unit cost increased as one moves from lower to higher stages of education. Other findings are : (i) Nominal unit costs of education at the primary school level in 1991 was 5.1 times while real unit costs was 1.6 times its level in 1976. Nominal unit costs at Middle School had increased 4.8 times and 1.4 times in real terms over the same period. Increase in unit costs at the primary and middle level were dominated by rising salary cost of teachers; (ii) The nominal unit cost of education at the high school level had increased by 5.3 times, but in real terms, it had increased only by 1.5 times. Increase in unit cost has been dominated largely by

increase in expenditure on non-teacher inputs. Non-teacher costs increased much faster than the rate of increase in overall costs and teacher cost per student. (iii) The unit cost of education at the college level increased 2.8 times in current prices and 1.3 times in constant prices during 11 years from 1976 to 1986. Unit costs of college education had been dominated by non-teacher costs.

7.5 Optimum Size and Unit Costs of Education :

The Quadratic functions had been estimated to the data pertaining to the unit costs of education given in constant prices to determine the optimum enrolment size and its corresponding minimum cost at each level of education. At the primary school level, the function furnished the estimates of optimum size of enrolment and the corresponding level of minimum costs. The size of enrolment where the unit cost per student was the lowest was 73,426 students and the minimum cost corresponding to this level of enrolment was Rs. 273. The Primary school system with such enrolment level is working optimally. On the other hand, the system suffers diseconomies of scale if the enrolment level deviates from this number. Meanwhile, the cost curves relating to Middle school, High School and College were concave to the origin indicating that these curves had an inverted U-Shaped. These cost functions could not furnish estimates of the optimum size and the minimum cost corresponding to it. However, they may give estimates of the enrolment size at which the cost was maximum. Movement into either direction from this size would facilitate reduction in unit costs of education.

7.6 Sources of Fund For Education :

Finances for education come mainly from two sources : (a) government sources which include central, State and Local governments, and (b) Private or non-government sources which include fees, donations and others. The study found that the share of government has been increasing over the years while the students contribution in the form of fees had declined quite considerably.

The funds received from government by private educational institutions are controlled and regulated by grants-in-aid rules of the state government. There are two separate rules for school and college education.

7.7 Institutional Cost of Higher Education :

The analysis of the structure of college education in Mizoram has revealed that College education was mainly dominated by education in Arts course. Out of the 29 colleges, there were 22 college which offered liberal education in Arts. Four colleges had Arts and Science programme. There was only one college offering Arts and Commerce education while two colleges were offering the three courses of Arts, Science, and Commerce. The study has shown that science and commerce education was lagging behind and even the authority of the state seemed to accord low priority to these courses. Infact, low priority in science and commerce education reflected the inadequacy of urbanisation; slow growth of commercial and industrial activities and domination of the economy by agriculture. Management-wise, there were 8

colleges under government including one maintained by the University while the remaining 21 colleges were under private management. These private colleges were of two types-private colleges under State's deficit grant-in-aid system and Private colleges that were not covered by the deficit grant-in-aid system.

The analysis of student-teacher ratio shows that there were 33 students per teacher at the college level in Mizoram. However, the ratio varied from college to college depending upon the nature of management and the number of course provided in the colleges.

The study has given the estimates of the growth trend of institutional unit cost in current and constant prices between 1983-84 and 1993-94. The overall institutional unit cost in nominal terms had increased from Rs 1583 per student in 1983-84 to Rs. 4759 per student in 1993-94. The index of institutional cost per student rose by 194.31 percent over this period. The growth rates had fluctuated widely from year to year. The institutional unit cost given in constant prices had declined from Rs. 1232 to Rs. 1217 and the real growth rates had been negative at -0.12 percent per annum over the same period.

The pattern of institutional cost indicates that about 80 to 88 percent has been spent on the operation and maintenance of the institution which were recurring in nature. The remaining 12 to 20 percent was devoted to non-recurring items which may be regarded as expenditure on capital formation. Much of the fund

available with the institution were spent on salaries of teaching and non-teaching staff. Teaching cost alone had accounted for more than 50 percent of the institutional cost. The share of teaching cost which was 61 percent in 1983-84 had increased to 63 percent in 1993-94. The share of unit cost on non-teaching staff varied between 12.8 percent to 15 percent of the institutional cost. The share of common services and student activities were declining. Per student expenditure on common services and other recurring items which had accounted for 6.6 percent in 1983 had fallen to 3.7 percent in 1993-94. Similarly, the proportion of cost accounted by student services declined from 4 percent to 2.8 percent. Of the total amount allocated to capital items, the major portion was spent on construction of buildings. The share of buildings cost had been rising, from 3.2 percent in 1983-84 to 10 percent in 1993-94. On the other hand, investment on library books declined from 6.1 percent in 1983-84 to a low of 1.3 percent in 1993-94 while the share of expenditure accounted by furniture and equipment varied between 2.4 percent to 10.5 percent in the same period.

The item-wise analysis of the trend of institutional cost shows the following features : (i) The overall unit recurring and non-recurring cost in nominal terms increased at the rate of 10.05 and 11.77 percent between 1983-84 and 1993-94. However, in real terms, unit recurring cost had registered a negative annual growth rate of 0.45 percent but non-recurring cost had increased at the rate of 1.28 percent annually; (ii) The items of recurring

cost such as teaching cost, non-teaching staff cost, common services and other recurring cost and student service cost had recorded annual increase in current prices over the years but the real unit cost of these items except teaching cost were found to have negative growth rates; (iii) Among the items of capital cost, building cost in nominal and real terms had increased while expenditure on furniture/equipment in nominal terms had risen but in real terms the growth rate was negative and per unit cost on library books had also witnessed negative growth rates in nominal and real terms.

The fee receipts of the institution has been included in the estimates of overall institutional unit cost. These fee receipts should be deducted from the overall unit cost to get the net cost borne by the institution. Net institutional cost represents the actual financial burden or the amount subsidised by the institution for the benefits of the students. The study has found that the proportion of fee to total institutional cost had steadily falling which implied that the level of subsidy per student had increased in nominal and real terms over the years.

The cost of education varied sharply between government and private colleges. The present study classified government college into university college and state government colleges. The results of the study shows that education in the university college was relatively costly as compared to colleges under state government and private management. The unit cost of education in the university college was 102 percent more than the unit cost in state colleges and 172 percent more than the unit cost of private

colleges. The variation in unit cost may be attributed to the difference in average pay of the teacher and student-teacher ratio. The estimates of net cost borne by the colleges under different management system showed that the amount of fee receipts per student was relatively high in private colleges compared to colleges under government. Fees contribute nearly 7 percent of the total cost in the university college whereas the proportion in the state government and private colleges were 10.81 percent and 28.52 percent respectively.

The study also gives estimates of unit cost of education according to the number of courses serviced in the college. On this basis, colleges were classified into four groups : (i) Arts college, (ii) Arts and science college, (iii) Arts and Commerce college, and (iv) Arts, science and Commerce college. The average enrolment size and unit cost varied together between colleges offering different types of courses. The average enrolment size had tended to increase with an increase in the number of course and subjects offered for servicing in the college. The colleges offering only one single course had the lowest enrolment size while the average size of colleges servicing two or more courses had relatively higher enrolment size. The co-efficient of variation of average size was estimated at 48.15 percent and standard deviation was 414.87 students. Expenditure per student or unit cost, like average enrolment size, varied between colleges offering different courses. The lowest cost per student was associated with Arts and commerce college. The unit cost of education was the highest in the colleges servicing the three

courses of Arts, Science and Commerce. The co-efficient of variation of unit cost in colleges of different types was 26.9 percent and the standard deviation of unit cost was also estimated at Rs. 1253.

The study makes an attempt to determine whether an increase in enrolment leads to a decline in cost per student in different colleges. For this purpose, data of cost per student in the different colleges at current prices were deflated at 1980-81 prices by using the Net National Product deflators. The ordinary Least Square (OLS) regression technique has been used to determine the relationship between enrolment and cost per student. The results for different colleges revealed that there existed an inverse relationship between enrolment and unit cost of education. Out of 10 colleges under study, eight colleges showed negative regression and correlation co-efficients. However, only five of the regression coefficient were statistically significant. Three of the unit cost functions had negative regression and correlation co-efficients but they were not significant statistically. There were two colleges in which the unit cost function had positive regression co-efficients and correlation co-efficients but they were not significant. The pooled regression analysis covering 110 observations indicated that there was a negative relationship between enrolment and cost per student. The regression co-efficient was also significant statistically.

The quadratic cost function has been estimated to determine the level of optimum enrolment size and its corresponding minimum cost in different colleges. Eight out of 10 cost curves were concave to the origin. This implied that the unit cost curves had an inverted U-Shape. Hence, the minimum cost and optimum size corresponding to it could not be estimated. These functions, however, furnished the level of enrolment at which the unit cost was maximum. The unit cost function of two colleges had the usual U-shape. The optimum size and minimum cost corresponding to it had been estimated.

7.8 Private Costs of Higher Education :

An important part of the unit cost analysis of the present study is the estimation of private cost of education with reference to the socio-economic background of the student. The present study had estimated the direct private cost borne by the students or their families. No attempt has however been made to estimate the indirect or opportunity cost of education. Direct private cost had two components - academic and non-academic cost. Academic cost indicated expenditure directly related with the education of the students whereas non academic cost related to expenditure for the support and maintenance of students. The academic costs included fees and the cost of books and stationery. Non-academic costs related to expenditure on food, transport & communication and personal maintenance. The estimates of private costs revealed that the cost of food constituted the maximum amount followed by expenditure on personal maintenance.

The academic costs consisting of the cost of books and stationery and fees came in the third place only. The cost of food alone constituted 61.63 percent while personal maintenance accounted for as much as 23.64 percent of the total private costs of education. The share of books and stationery was 6.04 percent and fees constitutes 3.49 percent. The study shows that the share of non-academic costs was much higher than the share of academic costs. Non-academic costs accounted for 86.29 to 90 percent of the total private costs in different courses while the share of academic costs varied between 10 to 13.71 per cent only.

The total average private cost of a student of pre-university arts was marginally higher than the average costs of a student of science and commerce. The average cost for a student of Pre-University arts was calculated at Rs. 11,936 per year while a student of science and commerce spent, on an average Rs. 11,519 and Rs. 11,675 per year respectively. At the degree level, the average private costs of education for a commerce student was found to be the highest. A commerce student spent on an average Rs. 13,763 per year while a student of science and Arts devoted Rs. 12,731 and Rs. 12,237 per year respectively. The estimate of private costs of education under different management system showed that the average private costs was the highest in the University college compared to colleges under state Government and private management. The private cost of education depends on the socio-economic status of the household concerned. Generally, income and occupation are the major variables that decide socio-economic status of the students. The study, therefore examined

private costs of education on the basis of the income of the household as well as the occupational background of the parents. The estimate of private costs by family income showed that the cost of education was progressively increasing with the increase in the level of family income. While the lowest income group spent, on an average Rs. 9,777 per student per year, the highest income group devoted Rs. 13,290 per student per year - 36 percent higher than the lowest income group. Similarly, the estimates of average private costs by parental occupation background indicated that student belonging to the professional and administrative group spent more than all other categories of occupation. The private cost of the children of farmers were found to be the lowest. One of the important findings of the analysis of private costs of education was that the lower income and occupation status students were under-represented in higher education in relation to their proportion in the total population. There were wide variation in the private cost of education at different classes of higher education. A number of factors like the income of the household, occupation of the parents, nature of management, costs of education materials and the styles of living may be identified as the explanatory variables for the variations in the private costs of education.

The private cost estimates included the government subsidy i.e., scholarships given direct to students. Therefore the net private cost of education were estimated by deducting scholarship received by the students. The net private cost, therefore, represents the real costs incurred by households on

the education of their children. The analysis revealed that scholarships constituted 11.92 percent of the total private cost of higher education in Mizoram.

7.9 Total Costs of Higher Education :

The total costs of education which include the net institutional costs and private costs have been estimated. The total cost of higher education in the state was estimated at Rs. 14582 per student per year. The cost of education was the highest in the University college and lowest in the private colleges. The total cost of completing the two-year pre-university course and the three year degree course was estimated at Rs. 96152 per student in the university college while the same course required Rs. 71084 and Rs. 65063.25 per student in the state and private colleges. The cost of education in the university college was 1.35 and 1.48 times higher than the costs of education in the state and private colleges. Thus, the study shows that cost of education in the university college was much more expensive than in the state and private colleges in Mizoram.

The study had shown that, contrary to the general belief, the institutional cost of education formed a relatively small part of the total cost of education. Institutional cost constituted 27.14 percent of the total costs while private cost had accounted 72.86 percent of the total cost of higher education in Mizoram.

7.10 POLICY IMPLICATIONS :

Some of the broad policy suggestions emerging from the analysis may be mentioned as follows :

1. The study has shown that Mizoram has made rapid progress in education especially in terms of literacy rate, enrolment, teachers, number of institutions and amount of public expenditure on education in the post-independence period. But the state lacks higher education in professional and technical education. Moreover, the pattern of existing college education was largely dominated by liberal education in Arts stream while science and commerce education was relatively neglected. Efforts should be made by government to develop science and commerce education along with technical and professional education in line with the manpower requirements of the state. Above all, education should be planned as a major component of human resource development strategy and as an important input into the development process. It needs to be closely integrated with overall development planning so that inter-sectoral links between education, economic growth, health, nutrition, poverty, employment and income distribution are improved.

2. Due to serious financial constraints at the state level, budgetary resources allocated to education has been gradually declining over the years. On the other hand, the demand for education has been greatly expanded due to various economic, socio-cultural and demographic pressures. The quantitative expansion of the educational sector along with qualitative

improvement of the existing system requires huge amount of public resources. Expenditure on education is universally accepted as one of the most important components of investment expenditure that contributes immensely to the growth of national and per capita income. It may be argued that a reduction or slowing down of public investment on education may have adverse effects on the long run development of the state economy. Therefore, the state government needs to allocate more resources, perhaps not less than 20 percent of its total budgetary expenditure to education.

Again, the financial crisis is going to deepen in the years to come and the gap between public budgets for education and the financial requirements of the education system especially higher education may widen further. Therefore, there is a need for diversification of financial sources for higher education. Exclusive reliance on public finances is neither justified nor feasible in the long run. Besides enhancing the existing fee rates, alternatives means such as community financing and student loans may be considered.

3. The state has witnessed rapid expansion of college education during the last 15 years. Many of these colleges were established due mainly to popular and political considerations and little attention has been paid to whether the area or locality would attract sufficient number of students to enable them operate at the optimal level of enrolment or not. In fact, there was no consideration for academic improvements and economic viability of the institutions. Lack of systematic educational

planning based on economic considerations to start a college in a particular locality has thus caused the system to operate at an inoptimal level. The following steps may be suggested to avoid such situation : (i) in a backward and hilly region like Mizoram, in order to remove the educational backwardness especially in the field of higher education, the state government may opt to subsidise higher education in terms of scholarship and stipends to students rather than through opening non-viable colleges. This policy may be more economical for the state and will also ensure better quality of education to students; (ii) Hostel facilities for college students are not only poor in quality but are also inadequate in quantity. There is an urgent need for expansion and improvements in the hostel facilities for attracting students from far flung areas. Further, concession may be given to the students from remote areas by reserving some seats for them in the college as well as in the hostels; (iii) the need for opening a new college in a particular area or locality should be examined thoroughly and except on academic grounds, no other consideration like political pressure should influence the decision to open a new college. The university and the state government should examine properly the following issues before giving affiliation and recognition to a new college - (a) the existing facilities for higher education in the area. (b) enrolment position of the nearby colleges, (c) the number of feeder schools of the proposed college with enrolment position in the higher secondary classes and finally, (d) the future potential viability.

4. The pattern of institutional cost has indicated that colleges in Mizoram spent a small amount of their resources on student services, library books and durable assets like furniture and equipment. This confirms the general prevailing condition that colleges do not give adequate attention to developing the student's personality and at the same time the quantity as well as quality of academic infrastructure is poor and inadequate. The state government and college authority should give attention to these aspects.

5. Higher education is heavily subsidised by the state government. The share of student contribution in the form of fee has declined over the years. The study has found that these subsidies were equally shared by the poor and the relatively better off in the society. A proper policy in this situation should be that a higher tuition fee may be charged from students coming from well to do family. However, students coming from relatively poor family may be considered for free studentship and other forms of financial assistance even for maintenance.

APPENDICES

APPENDIX - A
STATE LEVEL QUESTIONNAIRE

1. Details of Enrolment, Teachers and Number of Institutions

YEAR	PRIMARY			MIDDLE			HIGH SCHOOL			COLLEGE			ALL LEVELS		
	Enrolment	Teachers	Institutions	Enrolment	Teachers	Institutions	Enrolment	Teachers	Institutions	Enrolment	Teachers	Institutions	Enrolment	Teachers	Institutions
1972-73															
1973-74															
1974-75															
1975-76															
1976-77															
1977-78															
1978-79															
1979-80															
1980-81															
1981-82															
1982-83															
1983-84															
1984-85															
1985-86															
1986-87															
1987-88															
1988-89															
1989-90															
1990-91															
1992-93															
1993-94															

2. Details of Public Expenditure on Education (Level - wise)

Year	Elementary Education	Secondary Education	College Education	Others	Total
1972-73					
1973-74					
1974-75					
1975-76					
1976-77					
1977-78					
1978-79					
1979-80					
1980-81					
1981-82					
1982-83					
1983-84					
1984-85					
1985-86					
1986-87					
1987-88					
1988-89					
1989-90					
1990-91					
1992-93					
1993-94					

3. Details of Expenditure by Items (Primary/ Middle/ High School/ College)

	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
RECURRING																						
1 Salaries of teaching Staff																						
2 Salaries of non-teaching staff																						
3 Hostels																						
4 Libraries																						
5 Stipent/scho session																						
6 Apparatus/Chem/ consuables stores																						
7 Games & Sports																						
8 Main Building																						
9 Main Equipment																						
10 Other Items																						
NON-RECURRING																						
1 Libraries																						
2 Building																						
3 Equipment																						
4 Furniture																						
5 Other Items																						
TOTAL NON-RECURRING																						
GRAND TOTAL OF RECURRING & NON RECURRING																						

4. Sources of Income (Primary/ Middle/ High School/ College)

A. RECURRING	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
a) Central Gov't																						
b) State Gov't																						
c) Local Bodies																						
d) Tuition fees																						
e) Hostel Fees																						
f) Endowment & Others																						
g) Other fees																						
TOTAL RECURRING																						
B. NON-RECURRING																						
a) Central Gov't																						
b) State Gov't																						
e) Local Bodies																						
d) Others Sources																						
Total of Non-Recurring																						
Grand Total of Recurring & Non-Recurring																						

APPENDIX - B

INSTITUTIONAL LEVEL QUESTIONARE

1. Name of the Institution :
2. Address :
3. Nature of Management : Private/Govt/Semi Govt.
If private, the nature of
Management : Religious body/Society/
Individual/others
4. Is the Institution: (a) Recognised/Non-Recognised
If recognised, year of recognition
(b) Affiliated/Non-Affiliated
If affiliated, year of affiliation
5. Year of Establishment
6. Nature of the Institute Day/Night/Morning

7. Details of Teaching and Non-Teaching Staff

	Teaching Staff				Non-Teaching Staff			Total
	Arts	Science	Commerce	Total	Establishment	Library	Laboratory	
1983-84								
1984-85								
1985-86								
1986-87								
1987-88								
1988-89								
1989-90								
1990-91								
1991-92								
1992-93								
1993-94								

8. Details of Students Enrolment

YEAR	Arts	Science	Commerce	Total
1983-84				
1984-85				
1985-86				
1986-87				
1987-88				
1988-89				
1989-90				
1990-91				
1991-92				
1992-93				
1993-94				

9. Details of the University Examination Results

YEAR	Pre-University			Degree Course		
	Arts	Science	Commerce	Arts	Science	Commerce
1983-84						
1984-85						
1985-86						
1986-87						
1987-88						
1988-89						
1989-90						
1990-91						
1991-92						
1992-93						
1993-94						

10. **Details of Expenditure by Items**

Particulars	1983-84	1984- 85	1985- 86	1986-87	1987-88	1988- 89	1989-90	1990-91	1991- 92	1992- 93	1993- 94
RECURRING											
i. Salaries of Teaching Staff											
ii. Salaries of Non-Teaching staff											
iii. Common Items:											
a) Office Expenditure											
b) Misceleneous											
iv. Student activities. (Games & Sports, Social and Cultural & Others											
TOTAL OF - A											
B. NON-RECURRING											
i. Building											
ii. Library Books											
iii. Furniture											
iv. Equipment											
v. Others											
TOTAL OF - A											
GRAND TOTAL											

11. Sources of Finance

Particulars	1983- 84	1984- 85	1985- 86	1986- 87	1987- 88	1988- 89	1989-90	1990-91	1991- 92	1992- 93	1993- 94
GOVERNMENT											
i. Salary/General Maintenance											
ii. Furniture											
iii. Sport goods											
iv. Library											
v. Equipments											
vi. Others											
B. NON-RECURRING											
i. Tuition Fees											
ii. Others Fees											
iii. Administrative charges											
iv. Donations											
v. Endowments & Others											

APPENDIX - C

QUESTIONNAIRE FOR STUDENTS

1. Particulars of the student and the college:

.lm7

- 1.1 Name of the College.....
- 1.2 Class..... 1.3 Roll No. 1.4. Sex Male/Female
- 1.5 Age of the student.....
- 1.6 Permanent Address
- 1.7 Local Address.....,.....,
- 1.8 Nature of the shift in the college Day/Evening/Morning

2. Socio-Economic background of the students:

- 2.1 Size of the family member
- 2.2 Occupation of the Parents/Guardian
 - (a) Occupation
 - (b) Designation, if any
- 2.3 Monthly income of Parents/Guardians Rs
- 2.4 Accomodation of the students (please tick)
 - (i) Hostel, (ii) with parents/guardians (iii) rented house
- 2.5 Monthly room rent in the hostel (for hostellers)
Rs
- 2.6 House rent per month including water and electricity charges (for non-hostellers). Rs

3. Particulars of expenditure on food items:

- 3.1 Mess fee per month in the hostel Rs
- 3.2 Monthly average expenditure on food items (non-hostellers)
Rs (Food items include rice, vegetables,
cereals, edible oil, meat, milk, tea, sugar, spices,
firewoods and others)

3.3 Monthly average expenditure on daily tiffins and other related items at the college Rs

4. Expenditure on transport & communication:

4.1 Annual conveyance expenses from permanent residence to the place of study, (if any) Rs

4.2 Monthly average expenditure on bus fare and other conveyance charges (if any) Rs

4.3 Monthly average expenditure on postage, envelope, telephone and telegraph (if any) Rs

5. Particulars of expenditure on textbooks and stationery items:

5.1 Monthly expenditure on subscription or buying of newspapers, magazines and journal (if any) Rs

5.2 Total expenditure on textbooks, exercise books and other stationery items including laboratory tools for personal use in the current academic session Rs

6. Particulars of expenditure on personal maintenance:

6.1 Annual average expenditure on clothing and footwear Rs

6.2 Annual average expenditure on medicines, doctor's fees and other related expenditure Rs

6.3 Monthly average expenditure on toiletries and cosmetics Rs

6.4 Any personal expenditure on sports goods and materials in the current academic session Rs

7. If private tuition is taken, give the amount of money you have spend in the current session. Rs
8. Particulars of financial assistance received from the government and other public bodies:
- (i) Scholarship/stipends per month or year Rs
- (ii) Book grants Rs
- (iii) Any other Rs
9. Are you holding any job (including self-employment) under government or private agencies. If yes, give the following particulars:
- (i) Monthly salary Rs
- (ii) Designation, if any
10. Do you borrow money or take loan from your relatives, friends or any other sources for your education? If yes, give the following:
- (i) Amount of money borrowed or loan taken:
Rs
- (ii) Sources of the money (please specify)
.....
11. Particulars of your division in the following examinations:
- (i) H.S.L.C.
- (ii) P.U.C.

BIBLIOGRAPHY

BIBLIOGRAPHY

- Abramovitz, M. "Resource and Output Trends in the United States since 1890" in **American Economic Review**, papers and proceedings, May, 1956.
- Aggarwal, J.C., **Human Development in India since Independence (socio-Economic Profile)**, Shirpa Publications, Delhi, 1996.
- Agrawal, P.D. "Unit cost in conventional and Distance Education System", B.N.Koul, et al. (eds) **Studies in Distance Education**, AIU/IGNOU, New Delhi, 1988.
- Anderson, C.A., and Bowman, M.J., 'Concerning the role of education in Development', In C.Greetz (ed) **Old Societies and New States : The Quest for Modernity in Asia and Africa**, Collier Macmillan, London, 1963.
- Ansari, M.M., **Education and Economic Development**, Association of Indian Universities, New Delhi, 1987.
- Ansari, M.M. 'Educational Expenditure and Economic Growth' in C.S. Nagpal., and A. Mittal, (eds) **Economic of Education**, Anmol Publications Pvt. Ltd., New Delhi.
- Arumugam, P., and Paul, James Daniel., "Determinants of Private Cost of Ph.D.Research : A case Study" in **Journal of Higher Education**, Vol.19 No.3 Monsson 1998.
- Azad, Jagdish Lal, **Financing of Higher Education in India**, Sterling publisher Pvt. Ltd., New Delhi, 1975.
- Azad, Jagdish Lal and Mokhopadhyay, M., " Economics of Education :A Trend Report" in M.B.Buch (ed), **Second survey of Research in Education (1972-1978)**, Society for Educational Research and Develpment, Baroda 1978.
- Azad, J.L., **Graduate Unemployment in India**, Association of Indian University, New Delhi, 1991.
- Baldev, M., Majumdar, S and Lallura, F., **Educational Administration in Mizoram (Structures, Processes and Future Prospects)**, NIEPA, New Delhi, 1994.
- Bannock, G., Baxter, R.E and Rees, R., **The Penguin Dictionary of Economics** Peguin Books Ltd. Harmondsworth, Middlesex, Second Edition (Reprint) 1981.
- Becker, G.S., Investment in Human Capital : A Theoretical Analysis' **Journal of Political Economic**, Vol.70.1962.
- Becker, Gary S., **Human Capital (A Theoretical and Empirical Analysis, with special reference to Education)** NBER, New York, Second Edition, 1975.

- Benson, C., **The Economics of Public Education**, Houghton Mifflin Company, Boston, 1968.
- Betrand, Oliver., **Planning Human Resources : Methods, Experiences & Practices**, Sterling Publishers Private Limited, New Delhi, 1992.
- Birdsall, Nancy., "Public spending on Higher Education in Developing Countries: Too Much or Too Little" **Economics of Education Review** Vol.15. No.4. 1996.
- Blaug, Mark., **An Introduction to the Economics of Education** Penguin Books Ltd, Harmondsworth, Middlesex 1970.
- Blaug, Mark, Layard, P.R.G and Woodhall M., **Causes of Graduate Unemployment in India** Allen Lane, The Penguin Press, London, 1969
- Blaug, M and Woodhall, M."Productivity Trends in British Secondary Education, 1950-63" In J.Hallak (ed) **Educational Costs and Productivity**, UNESCO. IIEP, Paris, 1967 (Mimeographed)
- Bottomly, J.A., **Studies in Institutional Management in Higher Education-University of Bradford: Cost and Potential Economies**. O.E.C.D. Paris, 1972.
- Bowen, W.G., 'Assessing the Economic contribution of Education' in M.Blaug (ed) **Economics of Education-1** Peguin Books Ltd. Harmondsworth, Middlesex, 1968.
- Bowman, M.J. 'The Human Investment Revolution in Economic Thought' **Sociology of Education**, Vol. 39 1966.
- Bowles, S., " The Efficient Allocation of Resources in Education" **Quarterly Journal of Economics**, Cambridge, Mass., May 1967.
- Bowman, M.J., et al.(eds), **Readings in the Economics of Education**. UNESCO, Paris, 1968.
- Bray, Mark., **Counting the Full Cost** (Parental and Community Financing of Education in East Asia) The World Bank, Washington, D.C., 1996.
- Burgess, Layard R., and Pant, P., **Manpower and Educational Development in India 1961-1986**. Oliver & Boyd, London, Edinburgh, 1968.
- Centre for Monitoring Indian Economy (CMIE), **Basic Statistics Relating to Indian Economy**, Vol-2, Sept-1989, Bombay.
- Central Statistical Organisation, **National Accounts Statistics** - 1994.

- Chalam, K.S. **Finances Costs and Productivity of Higher Education.** Inter-India Publications, New Delhi, 1986.
- Chaudhari, D.P., "Education of Farmers and Productivity" in H.N.Pandit (ed) **Measurement of Cost Productivity and Efficiency of Education**", NCERT, New Delhi, 1969.
- Chaudhari, D.P., **Education, innovations and agriculture Development**, Croom Helm, London, 1979.
- Chaudhari, D.P., and Roa, P., "Private and social returns to higher education : A case study of Delhi graduates" in **Economic and Political Weekly**, 5/14(4 April) 1970.
- Coombs, P.H., **The World Educational Crisis: A system Analysis**, Oxford University Press, New York, 1968.
- Coombs and Hallak, **Managing Educational Costs**, UNESCO: IIEP Oxford University Press, New York, 1972.
- Correa, H., **The Economics of Human Resources.**, North Holland Publishing Company, Amsterdam, 1967
- Correa, H., and Tinbergen, J., 'Quantitative Adaptation of Education to Accelerated Growth' **Kyklos**, Vol.15, No.4, 1962.
- Datt, Rudder. "Unit costs of Education-A case study of Haryana Colleges". in H.N. Pandit (ed) **Measurement of Cost Productivity and Efficiency of Education.** NCERT, New Delhi, 1969.
- Datt, Rudder. "Distance Education versus Traditional Higher Education: A cost Comparison." in B.N.Koul (eds) **Studies in Distance Education**, AIU/IGNOU. New Delhi, 1988.
- Datt, Rudder and Sundharam, K.P.M. **Indian Economy**, S.Chand & Company Ltd. New Delhi. 1995.
- Dawngliana, M., **Census of India, 1991, Series-17, Mizoram**, paper 1 of 1991 (Provisional Population Total) Director of Census Operation, Mizoram, 1991.
- Denison, E.F. **The Sources of Economic Growth in the United States and the Alternatives before U.S.**, Supplementary paper No.13, Committee for Economic Development New York, 1962.
- Dey, B. "On costing of Education," in H.N.Pandit (ed) **Measurement of Cost, Productivity and Efficiency of Education**, NCERT. New Delhi, 1969.
- Dholakia, B.H., **The Sources of Economic Growth in India**, Good companions, Boroda, 1974.

- Directorate of School Education, Statistical Wing, Aizawl, Mizoram.
- Directorate of Higher and Technical Education, Aizawl, Mizoram.
- Dreze, Jean and Sen, Amartya, **India Economic Development and Social Opportunity**. Oxford University Press, New Delhi, 1997.
- Education Commission. **Education and National Development** (Report of the Education Commission, 1964-66) NCERT, New Delhi, 1970.
- Enaohwo, John O., **Economics of Education and the Planning Challenge**. Anmol publications, New Delhi, 1990.
- Farmer, James, "Why Cost Analysis for Higher Education" in K.M. Russain (ed), **Institutional Resources Allocation Models in Higher Education**, OECD, Paris, 1976.
- Fielden, J., and Pearson, P.K., **Costing Educational Practice**, Council for Educational Technology, London, 1978.
- Friedman, M. and Kuznets, S. "Incomes from Independent Professional Practice," **National Bureau of Economic Research**, New York 1946.
- Garg, V.P. Cost - Analysis of the University of Punjab, 1950-51 to 1974-75. **Indian Educational Review**, July, 1982.
- Government of India **India Facts Sheets**, Ministry of Information & Broadcasting, New Delhi, 1995.
- Government of India, **A Handbook of Educational and Allied Statistic** Ministry of Human Resource Development, New Delhi.
- Government of India, **Analysis of Budgeted Expenditure on Education** Ministry of Human Resource Development, New Delhi.
- Government of India **Selected Educational Statistics 1984-85 & 1985-86, 1989-90, 1990-91 & 1992-93**, Ministry of Human Resource Development, New Delhi.
- Government of India, **Economic Survey, 1992-93**, Ministry of Finance (Economic Division) New Delhi.
- Government of Mizoram, **Annual Plan, 1989-90 to 1993-94**, Planning and Programme Implementation Department, Mizoram.
- Government of Mizoram **Budget Estimates** (Various years) Mizoram.

- Government of Mizoram **Economic Survey of Mizoram, 1990-91**, Department of Economics & Statistics, Aizawl.
- Government of Mizoram, **Report on Socio-Economic review, 1970-80** Mizoram, Bureau of Economics and Statistics, Mizoram Administration, Aizawl, 1981.
- Government of Mizoram, **Statistical Hand Book Mizoram**, (Various issues) Department of Economics and Statistics, Aizawl.
- Government of Mizoram. **Mizoram Aided School (Recurring and Non-Recurring Grants - in-aid) Rules, 1990**, Education & Human Resources Department, Aizawl.
- Government of Mizoram, **Mizoram College (Recurring and Non-Recurring Grants-in-aid) Rules, 1990**, Education & Human resource Department Aizawl.
- Graham, J.W. "International Educational Expenditure" in George Psacharopoulos (ed) **Economics of Education (Research and Studies)** Pergamon Press, Oxford, 1987.
- Gujarati, Damodar N., **Basic Econometrics**, Mc Graw-Hill New York, 1995.
- Hallak, J. **The Analysis of Educational Costs and Expenditure**, UNESCO: IIEP, Paris, 1969.
- Hansen, W.L., 'Rates of Return to Investment in schooling in the United States' in M.Blaug (ed) **Economics of Education -1** EL BS/Penguin Books, Middlesex, 1968
- Harbison, Frederic H., **Human Resources as the Wealth of Nations** Oxford University Press, New York, 1973
- Harison, F.H. and Myers, C., (1964) **Education, Manpower and Economic Growth**, Oxford & IBH. New Delhi, 1974.
- Hicks, N.L. 'Education and Economic Growth' in George Psacharopoulos (ed), **Economics of Education, Research and Study** Pergamon press, Oxford, 1987.
- Hluna, J.V., **Education and Missioneries in Mizoram**, Spectrum Publication, Guwahati/Delhi, 1992.
- Hoenack, Stephen A., "The Economics of Education in developing Countries : An Assessment of the State of the Art" **Economics of Education Review**, Vol.15 No.4. 1996.
- Houthakar, H.S., 'Education and Income' **Review of Economics and Statistics**, Vol.41, February, 1959.
- Hussain, I.Z., 'Returns to Education in India : An Estimate' in B.Singh (ed), **Education as Investment**, Meenakshi Prakashan, Meerut 1967.

- International Institute for Educational Planning (IIEP).
Educational Cost Analysis in Action : Case Studies for Planners, Vol.-I, II, & III. UNESCO: IIEP, Paris, 1972.
- Institute of Applied Manpower Research (IAMR) **Cost Study 1964** New Delhi, 1964
- Institute of Applied Manpower Research (IAMR) **Pattern of Expenditure and per Student cost in Indian Institute of Technology**, New Delhi, 1975.
- Jalan, Bimal (ed) **The Indian Economy Problems and Prospects**, Penquin Books India (Pvt.) Ltd. New Delhi, 1992.
- Kendrick, J.W. : **Productivity Trends in the United States**, Princeton University Press, Princeton, New Jersey, 1961.
- Kothari, V.N. : " Returns to Education in India" in B.Singh (ed) **Education as Investment**, Meenakshi Prakashan, Meerut 1967.
- Kothari, V.N. and Panchamukhi, P.R., "Economics of Education (A Trend Report)" in **A Survey of Research in Economics (ICSSR)**, Allied Publishers Private Limited, 1980.
- Koul, B.N., et al., (eds), **Studies in Distance Education**, Association of Indian University, New Delhi, 1988.
- Koutsoyiannis, A., **Modern Microeconomics**, Macmillan, London, 1979.
- Koutsoyinnis, A. **Theory of Econometrics**, Macmillan, London, 1977.
- Kulkarni, G.B. "Cost of Education in Commerce Colleges of Bombay 1962-63 to 1966-67" in H.N. Pandit (ed) **Measurement of cost productivity and Efficiency of Education**, NCERT, New Delhi. 1969.
- Lakdawala & Shah. **Optimum Utilization of Educational Edpenditure in Gujarat**. Monograph series -5. Sardar Patel Institute of Economic & Social Research, Ahmedabad, 1978.
- Lalliani : **An Analytical Study of the primary Edcuation in Mizoram during the post Independence period** unpublsh Ph.D.Thesis, Department of Education, NEHU, Shillong, 1990.
- Lalthangliana, B., **History of Mizo in Burma (M.A., Dissertation** Zawlbuk Agencies, Aizawl. 1977.
- Lalnuntluanga, R., **Demand for and Supply of Technical Manpower: A Study with special reference to Doctors and Engineers in Mizoram**, unpublished M.Phil Dissertation, Department of Economics, NEHU, Shillong, 1990.

- Lawma, T., "Earning - Occupation-Education Inter-Relations: A case study of North-East India" *Manpower Journal*, Vol.XXII NO I April-June, 1986.
- Lawma, T. **Perspective plan for conservation, Management and Development of Land Resources in North Eastern Region of India (A Report)** Deptt. of Economics, NEHU Shillong, 1995.
- Lawma, T. **Market Imperfections and Manpower Planning** Commonwealth publishers, New Delhi, 1990,
- Layard, P.R.G., and Saigal, J.C., "Educational occupational Characteristics of Manpower : An International Comparision" in *British Journal of Industrial Relations*, 1966.
- Lianzela., **Economic Development of Mizoram**, Spectrum Publication Guwahati, 1994.
- Locheed, M.E. 'Farmers' Education and Economic performance' in George Psacharopoulos (ed) *Economics of Education Research and Study* Pergamon Press, Oxford, 1987.
- Luce, G.H. **Old Kyaukse and the Coming of Burmans** JBBS, XLII,i, June 1959, p-89 (cited by B.Lalthangliana in *History of Mizo in Burma, Zawlbuk Agencies, Aizawl, 1977*).
- Mechlup, F. **The Production and Distribution of Knowledges in United States**. Princeton University Press, New Jersey, 1962.
- Majumdar, Tapas., **Investment in Education and Social choice**. Orient Longman, New Delhi, 1983.
- Marchall, Alfred (1890) **Principles of Economics**, Macmillan 1961.
- Mathew, E.T. , **Financing Higher Education (Sources and Uses of Funds of Private Colleges in Kerela)**. Concept publishing Company, New Delhi, 1991.
- Maynard, J. **Some Micro-economics of Higher Education: Economies of Scale**, University of Nebraska, Lincoln, Nebraska, 1971.
- Mazumdar, K.,and Paul, M. **Human Capital Formation (A study of Unaccounted components)** Mittal Publications, New Delhi 1991.
- Mc Call. A.G. **Lushai Chrysalis**, Tribal Research Institute, Reprint Aizawl, 1977.
- Mehta, B.C. "Cost of Education in Rajasthan Agricultural University" in *Manpower Journal*, Vol. XXXI No.2, July-September, 1995.

- Meyer, Gerald M., "Investment in Human Capital - Note" in Gerald M. Meyer (ed), **Leading Issues in Economic Development**, Oxford University Press, New York, 1976.
- McClelland, D.C. "Does Education Accelerated Economic Growth" in **Economic Development and Cultural Change**, April, 1996.
- Meyer, Gerald, M. "Investment in Human Capital- Note" in Gerald M. Meyer (ed) **Leading Issues in Economic Development** Fifth Edition, Oxford University Press, Dehi, 1990.
- Miller, H.P., "Annual and Lifetime Income in Relation to Education" **American Economic Review**, December 1960.
- Mincer, Jacob., "Investment in Human Capital and Personal Income Distribution" in **Journal of Political Economy.**, Vol. 66 No. 4, August 1958.
- Mingat, Alain and J.P Tan. "On Equity in Education again: An international Comparision" **Journal of Human Resources**, 20 vol. No. 2 Spring/1985.
- Mitra, C.R., "Cost of Higher Education" in **University News**, February, 2, 1993, Association of Indian University. New Delhi.
- Mridula., **State Funding of Universities** (A Study of Maintenance Grants to Universities) Association of Indian Universities, New Delhi, 1985.
- Musgrave, Richard A., "Educational Investment in Developing Countries" in Gerald M. Meyer (ed), **Leading Issues in Economic Development**, Exford University Press, New York, 1976.
- Mukerji, K. and Krishna Rao, A., "Education and Economic Development in India between 1951 and 1961: An Empirical Investigation", in B. Singh (ed) **Education as an Investment** Meenakshi Prakashan, Meerut, 1967
- Myint, Hly, "Investment in the Social Infrastructure" in Gerald M. Meyer (ed), **Leading Issues in Economic Development**, Oxford University Press, New York, 1976
- Nagpal, C.S., and Mittal, A.C., **Economics of Education**, Anmol Publications Pvt. Ltd. New Delhi, 1993.
- Nalla Gounden, A.M : **Education and Development: A Study of Human Capital Formation and Role in Economic Development in India**, unpublished Ph.D thesis, Kurukshetra University, Kurukshetra, 1965.
- Nataranjan, S., **Introduction to Economics of Education**, Sterling Publishers Private Limited, New Delhi, 1990.

- National Council of Applied Economic Research (NCAER).
"Elementary Education in India", Margin, Volume 27, No. 2
Jan-Mar 1995.
- National Informatics Centre, Primary Census Abstract, 1991
Mizoram State Unit, Aizawl.
- North Eastern Council, **Basic Statistics of North Eastern Region**
1987, 1992 & 1995. Ministry of Home Affairs, Gov't of
India, Shillong.
- Organisation for Economic Cooperation and Development, "Targets
for Education in Europe in 1970, Vol II", **Policy Conference
and Economic Growth and Investment in Education**, Paris,
January, 1962.
- Organisation for Economic Co-operation and Development,
**Educational Expenditure in France, Japan and the United
Kingdom**, Paris 1977.
- Panchamukhi, P.R. "Educational Capital in India" **Indian Economic
Journal**, 12, Jan-March, 1965.
- Panchamukhi, V.R., and Panchamukhi, P.R. "Socio-Economic Variable
and Urban Incomes" in H.N. Pandit (ed) **Measurement of Cost
Productivities and Efficiency of Education**, NCERT, 1965
- Pandit, H.N. "Cost and Financing of Education-Private and Social
Participation" **Indian Educational Review**, Vol-2, No. 2 July
1972.
- Pandit H.N., **Measurement of Cost Productivities and Efficiency in
Education**, NCERT, New Delhi, 1969.
- Pandit, H.N. "A Study in Unit Costs at School Stage in India: A
Design of the Research Project" in H.N. Pandit (ed),
**Measurement of Cost Productivities and Efficiency of
Education**, NCERT, New Delhi, 1969.
- Pandit, H.N.: **Effectiveness and Financing of Investment in
Education in India 1950-51 to 1965-66** unpublished doctoral
thesis, Delhi University, Delhi, 1972.
- Parnes, H.S., "Manpower Analysis in Educational Planning" in H.S.
Parnes (ed) **Planning Education for Economic and Social
Development** OECD, Paris, 1964.
- Petersen, H. Graig and Lewis, W. Cris., **Managerial Economics**,
Prentice Hall of India Pvt. Ltd., New Delhi, 1986.
- Prakash, S., "An Input-Output Model for Educational Planning"
Artha Vijanana, Vol. 13, No.2, June 1971
- Prakash, S., **Educational System of India, An Econometric Study**,
Concept Publishing Company, New Delhi, 1977

- Prakash, S. "Projection of Occupational-Educational Structure of Manpower, A Study of Public Sector Industries" *Artha Vijnana* Vol 13, No. 1, March, 1971.
- Prakash, S. **Cost of Education, Theoretical Explorations and Empirical Prognostication**, Anamika Publishers & Distributors Delhi, 1966.
- Prakash, S. and Radhakrishnan, C., "Private Demand for Education Analysis of Socio-Economic Factors : A case Study of Saugar University," *Manpower Journal*, 1973.
- Prakash, Shri and Chowdhury, Sumitra. **Expenditure on Education Theory, Models and Growth**, NIEPA, New Delhi, 1994.
- Psacharopoulos, G. **The Return to Education: An International Comparision**, Elseviern Amsterdam, 1972.
- Psacharopoulos, G. "Returns to Education: An updated international Comparision," *In Comparative Education*, 1981.
- Psacharopoulos, "Economics of Education: A research Agenda" *Economics of Education Review*, Vol. 15, No. 4, 1996.
- Ramanujam, M.S., "Planning Models for Optimum Allocations of Resources in Education" in H.N Pandit (ed). **Measurement of Cost Productivities and Efficiency of Education**, NCERT, New Delhi 1969
- Rao, H. Venkateswara., "Educational Costs: Concepts and Issues" in H.N Pandit (ed), **Measurement of Cost Productivities and Efficiency of Education**, NCERT, New Delhi, 1969
- Report of the Comptroller and Auditor General of India, **Finance Account**, Government of Mizoram. (1972 to 1993)
- Robinson, E.A.G., and Vaizey, J. **The Economics of Education** Macmillan, London, 1996.
- Rualkhuma Colney: **Industrial Development in Mizoram - A case Study of Small and Cottage Industries**, (Unpublished Ph.D. thesis) Deptt. of Geography, NEHU, Shllong, 1995.
- Salim, A. Abdul, "Private Cost of Higher Education in Kerala: Socio-Economic Analysis," *Journal of Higher Education* Volume 16 No. 3 Summer, 1993.
- Salim, A. Abdul, "Institutional Cost of Higher Education- A case study of Kerala" *Manpower Journal*, Vol. XXXII No. 1 April-June 1996.

- Shah, K.R. "Private Costs of Elementary Education" in H.N. Pandit (ed) **Measurement of Cost, Productivities and Efficiency of Education**, NCERT, New Delhi, 1969
- Shah, K.R. "Expenditure on Professional School Education in India, 1950-51 to 1960-61" in H.N. Pandit(ed) **Measurement of Cost Productivities and Efficiency of Education**, NCERT, 1969.
- Sharma, G.D. **Institutional Costs of University Education - A Study of Costs and Efficiency of Indian University system**, AIU, New Delhi, 1980
- Sharma, G.D. and Mridula., **Economics of College Education - A Study of Hindu College**, Delhi, AIU, New Delhi, 1982.
- Sharma, Narayan Prasad., **Economics of College Education. A study of Non-viable colleges**. Anmol Publications New Delhi 1993.
- Sharma, D.L., "Unit Costs of Education - Our knowledge, Gaps and Needs" in H.N. Pandit (ed) **Measurement of Cost Productivities and Efficiency of Education**, NCERT, New Delhi, 1969.
- Shultz, T.W. **The Economic Value of Education**, Columbia University Press, New York, 1963.
- Shultz, T.W. "Capital Formation by Education" **Journal of Political Economy**, Vol. 68, December 1960
- Shultz, T.W., "Education and Economic Growth" in H.G. Richey (ed) **Social Forces influencing American Education** Chicago, 1961.
- Shultz, T.W. "Investment in Human Capital, " **American Economic Review** Vol. 51, 1961.
- Shultz, T.W. **Investing in people The Economics of Population Quality**) Hindustan Publishing Corporation (India) Delhi 1981.
- Shultz, T.W. "Education and Population Quality" in George Psacharopoulos (ed) **Economics of Education, Research and Study**, Pergamon Press, Oxford, 1987.
- Smith, Adam (1876) **The Wealth of Nations** Modern Library Edition, New York, 1973.
- Svennilson, I., et. all., **Policy Conference on Economic Growth and Investment in Education, Volume II. Targets for Education in Europe in 1970**, OECD, Paris, 1962.
- Sodhi, T.S., **Education & Economic Development**. Vani Educational Books, New Delhi, 1984.

- Solow, R.M. "Technical Change and the Aggregate Production Function", *Review of Economics and Statistics*, August 1957.
- Stone, Richard, "A Model of the Educational System" in Richard Stone *Mathematics in the Social Sciences and Other Essays* Chapman & Hall, London, 1966.
- Than, Tun, Prof. *Early Burmese History*, Kayah Thuhka Press, Rangoon, 1969 (cited by B. Lalthangliana in *History of Mizo in Burma, Zawlbuk Agencies, Aizawl, 1977.*
- Thirlwall, A.P., *Growth and Development with Special Reference to Developing Countries*, ELBS with Macmillan, Hampshire, 1994.
- Tilak, J.B.G. *The Economics of Inequality in Education*, Sage Publication India, Pvt. Ltd., New Delhi, 1987.
- Tilak, J.B.G., "Education and the Quality of Labour" in M.M. Verma (ed) *Human Resource Development*, Gitanjali Publishing House, New Delhi, 1988.
- Tilak, J.B.G., "Unit Cost Analysis of Higher Education in India" in Devendra Thakur (ed), *Education and Manpower Planning*, Deep & Deep Publications, New Delhi, 1990.
- Tilak, J.B.G. "Financing Higher Education in India" in Sumas Chitnis, & Phillip G. Altbach (eds), *Higher Education Reform in India (Experience and Perspective)*, Sage Publication Pvt. Ltd. New Delhi, 1993
- Tilak, J.B.G. *Education for Development in Asia*, Sage Publication Pvt. Ltd. New Delhi, 1994.
- Tinbergen, J., and Bos, H.C., "A Planning Model for the Educational Requirements of Economic Development" in *Econometric Models of Education*, OECD, 1965.
- Tadaro, Michael P, *Economic Development in the Third World*, Orient Longman Limited, Hyderabad, 1993.
- Verry, D.W., "Educational Cost Functions" in George Psacharopoulos (ed.), *Economics of Education, Research and Study*, Pergamon Press, New York, 1987
- Vaizey, J. *Costs of Education*, Allen & Unwin, London, 1958
- Vaizey, J. and Sheehan, J. *Resources for Education. An Economic Study of Education in the United Kingdom, 1920-1965* Allen & Unwin, London, 1968.
- Walsh, J.R., "Capital Concept Applied to Man" *Quarterly Journal of Economics*, Vol. 49, 1935.

- Woodhall, M., "Cost-Benefit analysis in educational planning" UNESCO: International Institute for Education Planning, Paris, 1980.
- Woodhall, M., "Economics of Education: A review" in George Psacharopoulos (ed), **Economics of Education, Research and Study**, Pergamon Press, Oxford, 1987.
- Woodhall, M., "Human Capital Concepts" in George Psacharopoulos (ed.), **Economics of Education, Research and Study**, Pergamon Press, Oxford, 1987
- Woodhall, M. "Cost Analysis in Education" in George Psacharopoulos (ed.) **Economics of Education, Research and Study** Pergamon Press, Oxford, 1987
- Woodhall, M., "Student Fees" in George Psacharopoulos (ed), **Economics of Education, Research and Study**, Pergamon Press, Oxford, 1987
- Woodhall, M., "Student Loans" in George Psacharopoulos, (ed), **Economics of Education, Research and Study**, Pergamon Press, Oxford, 1987.

BRIEF BIO-DATA OF THE CANDIDATE

1. Name : Mr. Vanlalchhawna
 2. Father's Name : Zathangvunga
 3. Date of Birth : 15th July 1963
 4. Present Address : Chanmari, F-5
 Aizawl, Mizoram Pin-796007
 5. Occupation : Lecturer, Department of Economics,
 Hrangbana College, Aizawl 796007
 6. Experience in the Occupation : 9 years

7. Educational Qualifications:

Particulars	Year of Passing	Division
i) H.S.L.C.	1979	I
ii) P.U.C.	1981	II
iii) B.A. (Hons in Eco.)	1983	II
iv) M.A.	1985	II

8. Area of Research/ Specialization : Economics of Education

9. Published Work if any:

- (i) Presented Paper on "Economic Development, Land Use and Environmental Degradation in Mizoram" at the International Seminar on Environment, Bio-diversity and Sustainable Development in North East India, jointly sponsored by NEHU- Government of Mizoram during September, 1995, Aizawl.
- (ii) Presented Paper on "Educational Cost Analysis - A Case Study of Mizoram" at National Seminar on Cost of Education on 31st December, 1996 to 2nd January, 1997, NIEPA, New Delhi.
- (iii) Presented Paper on "Unit Cost Analysis of Education in Mizoram" at Workshop on Perspective Development Studies for Mizoram, sponsored by IASSI & NEHU on 20th June, 1997, Aizawl.

10. Any other activities:

- (i) Secretary, Mizoram Economic Association, Aizawl. *103 247 - Article 2-3-2007.*
- (ii) Member, Study Group on History and Cultural Heritage of Mizo in South East Asia, Bangla Desh and North-East India under Government of Mizoram.