

# CONTENT

	Page No.
ACKNOWLEDGEMENT	i
PREFACE	ii
CONTENT	iv
LIST OF TABLES	ix
LIST OF FIGURES	xi
LIST OF PHOTOGRAPHS	xiii
GLOSSARY	xiv
<b>INTRODUCTION</b>	1
<b>CHAPTER - I PHYSICAL BACKGROUND OF THE BALASON WATERSHED</b>	9
INTRODUCTION	9
1.1 Physical Background	9
1.1.1. Relative Relief	13
1.1.2. Slope	13
1.2 Geology	15
1.3 Drainage	18
1.4 Climate	20
1.5 Soil	22
1.6 Vegetation	23
CONCLUSION	25
<b>CHAPTER - II DRAINAGE CHARACTERISTICS IN THE BASIN</b>	27
INTRODUCTION	27
2.1 Drainage Characteristics	27
2.1.1 Long and Cross Profile	27
2.1.2. Stream Ordering	31
2.1.3. Drainage Frequency	31
2.1.4. Drainage Density	32

2.1.5. Bifurcation Ratio	33
2.1.6. Circularity Ratio	33
2.1.7. Elongation Ratio	34
2.1.8. Form Factor	34
2.1.9. Compactness Co-efficient	34
CONCLUSION	35
<b>CHAPTER - III HUMAN RESOURCE IN THE BASIN</b>	37
INTRODUCTION	37
3.1 Distribution of Population	38
3.2 Composition of Population	40
3.2.1 Sex Ratio	40
3.2.2. Caste Composition	41
3.2.3. Literacy	42
3.3 Density of Population	45
3.4 Growth of Population	46
3.5 Occupational Pattern	47
CONCLUSION	51
<b>CHAPTER - IV LAND USE IN THE BASIN</b>	54
INTRODUCTION	54
4.1 General Land Use	55
4.1.1 Area under Forest	55
4.1.2 Cultivated Area	57
4.1.3 Culturable Waste	61
4.1.4 Area not Available for Cultivation	62
4.2 Land Tenure System	62
4.3 Agricultural Practices	66
4.4 Problems of Agricultural Sector	67
4.5 Characteristics of Cropping Pattern	68
CONCLUSION	73
<b>CHAPTER - V SOCIO-ECONOMIC FUNCTIONS AND THEIR DISTRIBUTIONS</b>	76
INTRODUCTION	76
5.1 Education	76

5.2 Health Services	78
5.3 Communication	81
5.4 Transport	82
5.5 Banking Facility	84
5.6 Industry	85
5.7 Electricity	85
5.8 Drinking Water	86
5.9 Recreational Facility	87
5.9.1 Tourism	88
CONCLUSION	89
<b>CHAPTER – VI MAJOR PROBLEMS IN THE BASIN</b>	91
INTRODUCTION	91
6.1 Physical Problems	91
6.1.1 Types of Soil Erosion	91
6.1.2 Causes of Soil Erosion	96
6.2 Problems for Agricultural Development	105
6.2.1 Physical Problems	105
6.2.2 Institutional Problems	106
6.2.3 Cultural Problems	108
6.3 Socio-economic Problems	109
6.3.1 Education	109
6.3.2 Health Services	110
6.3.3 Communication	111
6.3.4 Transport	111
6.3.5 Banking Facility	112
6.3.6 Electricity	113
6.3.7 Drinking Water	113
6.3.8 Political Problems	114
CONCLUSION	114
<b>CHAPTER – VII CONSERVATION AND MANAGEMENT</b>	116
INTRODUCTION	116
7.1 Water Management	116

7.1.1 Control of Water Losses	116
7.1.2 Conservation through Artificial Recharge	117
7.1.3 Conservation of Soil Moisture	117
7.1.4 Conjunctive Use of Surface and Ground Water Resources	118
7.1.5 Water Quality Management	118
7.1.6 Change in Municipal System and Recycling Methods	119
7.1.7 Exroscaping	119
7.1.8 Grey-Water Recycling	120
7.1.9 Methods of Increase Water Input	120
7.1.10 Rain Water Harvesting or Storm Water Management	120
7.1.11 Accelerated Water Storage Development	121
7.1.12 Role of Media, Communities and Professional Societies	121
7.1.13 Water Management Measures for the Tea Gardens	121
7.1.14 Tillage and Land Grading	122
7.1.15 Fertilizer Use	122
7.1.16 Cropping Pattern	122
7.2 Soil Water Management	123
7.3 Land Use and Conservation Agronomy	123
7.4 Natural Resource Management	128
7.4.1 Social Forestry	130
7.4.2 Farm Forestry	130
7.4.3 Strip Planting	130
7.4.4 Joint Forest Management	130
7.4.5 Agro Forestry	131
7.5 Human Resource Management	132
CONCLUSION	133

<b>CHAPTER – VIII MAJOR STRATEGIES FOR THE</b>	135
<b>DEVELOPMENT OF THE BASIN</b>	
INTRODUCTION	135
8.1 Past Strategies	135
8.1.1 Past Strategies for Rural Development	135
8.1.2 Past Strategies for Forest Development	139
8.1.3 Past Strategies for Tea Cultivation	142
8.2 Present Strategies	143
8.3 Future Strategies	150
8.3.1 Human Resource	150
8.3.2 Forest	150
8.3.3 Agriculture	151
8.3.4 Tourism	155
CONCLUSION	156
<b>CHAPTER IX CONCLUSION</b>	157
BIBLIOGRAPHY	168
ABBREVIATIONS	175
APPENDICES	
Table – I Name and location code of different villages of the study area	I
Table – II a) Questionnaire for collecting data (Village)	III
b) Questionnaire for collecting data (Tea gardens)	VI
Table – III a) Census abstract – 1991	VIII
b) Census abstract – 2001	XI
Table – IV a) Land use pattern – 1991	XIV
b) Land use pattern – 2001	XVI
Table – V Area and production under different crops (2006)	XVIII