Contents

Acknowledgment I-III
Preface IV-V
List of Tables VI-IX
List of Figures X-XII

1. Introduction 1-15
2. Review of Literature 16-31
3. Study Area 32-53
   3.1 Geology 34
   3.2 Climate 34
   3.3 Soil 35
   3.4 Physical feature 36
   3.5 Drainage pattern 36
   3.6 Slope 37
   3.7 Natural vegetation 38
   3.8 Forest cover 38
   3.9 Land utilization 39
   3.10 Agriculture 39
   3.11 Mineral resources of Jaintia Hills 40
   3.12 Coal mining in Jaintia Hills 42
   3.13 Environmental degradation associated with coal mining in Jaintia Hills District 46
   3.14 Sampling locations 48
4. Methodology 54-65
  4.1 Collection of secondary data 54
  4.2 Analysis of secondary data on land use 54
  4.3 Analysis of secondary data on area, production and yield of agricultural crops 55
  4.4 Analysis of physico-chemical properties of soil of study area 56
  4.5 Evaluation of rice varieties in mine affected soil 57
  4.6 Measurement of growth and yield parameters 62
  4.7 Statistical analysis 65
  4.8 Comparison of different varieties 65

5. Results and Discussion 66-153
  5.1 Land Utilization Pattern in Jaintia Hills 67
  5.2 Cultivation of rice and other crops in Jaintia Hills District (1987-88 to 2001-02) 77
  5.3 Impact of coal mining on agriculture of Jaintia Hills district of Meghalaya 85
  5.4 Physico-chemical analysis of soils from coal mining area 91
  5.5 Treatment of soil to improve its quality 100
  5.6 Varietal trial under different remediation options 107

6. Summary 154-162
References 163-180
Appendix I 181
Appendix II 182