CONTENTS

ACKNOWLEDGEMENTS

ABSTRACT

CHAPTERS

I INTRODUCTION 1-8

1.1 GENERAL
1.2 AREA OF STUDY

1.2.1 Location
1.2.2 Climate
1.2.3 Choice of the study area

1.3 OBJECTIVES OF THE STUDY
1.4 PREVIOUS WORK

II MATERIALS AND METHODS 9-23

2.1 INTRODUCTION
2.2 DATA USED

2.2.1 Remote Sensing Data
2.2.2 Ancillary Data
2.2.3 Field Data
2.2.4 Laboratory Data

2.3 WORK PLAN
2.4 VISUAL INTERPRETATION OF SATELLITE DATA
2.5 DIGITAL IMAGE PROCESSING

2.5.1 Image Rectification/Registration
2.5.2 Digital Image Enhancement

2.6 INTERPRETATION OF TOPOGRAPHIC MAPS
2.7 FIELD WORK
2.8 POST FIELD WORK

2.8.1 Finalisation of Thematic Maps
2.8.2 supervised classification of Digital Data
2.8.3 Chemical Analysis of Water Samples
2.8.4 Analysis of Soil Samples

2.9 DATA INTEGRATION AND ANALYSIS USING GIS

2.9.1 Hardware and Software used
2.9.2 Preparation of Data Base
2.9.3 Data Integration and Analysis
III  GEOLOGY OF THE AREA  24-46

3.1 INTRODUCTION
3.2 OBJECTIVES
3.3 METHODOLOGY
3.4 REGIONAL GEOLOGICAL SET UP
3.5 DISTRIBUTION AND CHARACTERISTICS OF DIFFERENT LITHOUNITS
   3.5.1 Mahakoshal Group
   3.5.2 Vindhyan Supergroup

3.6 STRUCTURE
   3.6.1 Lineaments
   3.6.2 Other Tectonic Structure

3.7 MINERAL RESOURCES OF THE AREA
3.8 SUMMARY OF THE RESULTS

IV  GEOMORPHOLOGY OF THE AREA  47-59

4.1 INTRODUCTION
4.2 UTILITY OF GEOMORPHIC CLASSIFICATION
4.3 OBJECTIVES
4.4 METHODOLOGY
4.5 PHYSIOGRAPHY
4.6 DRAINAGE
4.7 CLASSIFICATION AND DISTRIBUTION OF GEOMORPHIC UNITS
   4.7.1 Geomorphic Units in Quaternary Formation
   4.7.2 Geomorphic Units in Vindhyan
   4.7.3 Geomorphic Units in Pre-Vindhyan

4.8 SUMMARY OF THE RESULTS

V  DRAINAGE BASIN MORPHOMETRY  60-70

5.1 INTRODUCTION
5.2 OBJECTIVE
5.3 METHODOLOGY
5.4 MORPHOMETRIC ANALYSIS
5.5 CONCLUSIONS
5.6 SUMMARY OF THE RESULTS

VI  SLOPE MORPHOMETRY  71-75

6.1 INTRODUCTION
6.2 OBJECTIVES
6.3 METHODOLOGY
6.4 DESCRIPTION OF DIFFERENT SLOPE CLASSES
6.5 SUMMARY OF THE RESULTS

VII LANDUSE/LANDCOVER  76-94

7.1 INTRODUCTION
7.2 OBJECTIVES
10.1 INTRODUCTION
10.2 OBJECTIVES
10.3 GIS ANALYSIS FOR DELINEATION OF GROUNDWATER PROSPECT ZONES
   10.3.1 Preparation of Database
   10.3.2 GIS Analysis
   10.3.3 Results
10.4 GIS ANALYSIS FOR DELINEATION OF SOIL EROSION SUSCEPTIBILITY ZONES
   10.4.1 Preparation of Database
   10.4.2 GIS Analysis
   10.4.3 Results
10.5 GIS ANALYSIS FOR EVALUATION OF AIR POLLUTION HAZARD ZONES
   10.5.1 Introduction
   10.5.2 Methodology
   10.5.3 Results
10.6 GIS ANALYSIS FOR DELINEATION OF GROUNDWATER POLLUTION HAZARD ZONES
   10.6.1 INTRODUCTION
   10.6.2 METHODOLOGY

SUMMARY AND CONCLUSIONS

REFERENCES