

## LIST OF TABLES

<b>Table 3.1</b>	Morphometric analysis of the study area.	19
<b>Table 3.2</b>	Classification of Landscape feature in the study area.	21
<b>Table 3.3</b>	Salient Features of the analysis of rainfall in part of Uma River Basin	23
<b>Table 3.4</b>	Hydrogeomorphological Units of Uma river Basin	27
<b>Table 3.5</b>	Geology of the area.	30
<b>Table 4.1</b>	Stratigraphic nomenclature and thickness of the western Deccan Basalt formation.	35
<b>Table 4.2</b>	Detailed stratigraphy of various formations exposed in the study area.	42
<b>Table 4.3</b>	Representative chemical analysis of various stratigraphic formations exposed in the study area.	45
<b>Table 4.4</b>	Comparison of geochemical criteria used to define various chemical types and formations exposed in the study area	46
<b>Table 5.1</b>	Petrographic data of various lava flows exposed in the Uma River Basin.	52
<b>Table 5.2</b>	Modal proportion of various phases in the phenocrystic assemblages (Pl. Cpx, Op, Ol) from the various chemical types belonging to various formation exposed in the study area.	60
<b>Table 6.1</b>	Showing water level for June 1999, 2000 and December 1999, 2000.	102
<b>Table 6.2</b>	Details of Dug wells where pumping tests were conducted	107
<b>Table 6.3</b>	Details of the Aquifer test	107
<b>Table 6.4 (a)</b>	Hydraulic parameters computed from aquifer test.	110
<b>Table 6.4 (b)</b>	Recommandations	110
<b>Table 7.1</b>	Natural Processes controlling human influence on groundwater quality	113
<b>Table 7.2</b>	Comparison of the quality parameters of the groundwater in the study area with WHO and ISI for drinking purpose	127
<b>Table 7.3</b>	Showing Irrigation groundwater classification based on EC	128

<b>Table 7.4</b>	Correlation coefficient matrix of hydrogeochemical variables	137
<b>Table 7.5</b>	Dominant Variables	138
<b>Table 8.1</b>	Command used in GIS preliminary analysis	144
<b>Table 8.2</b>	Thematic map weight and feature ranking	145

## LIST OF FIGURES

<b>Figure 1.1</b>	Location map of the study area	4
<b>Figure 3.1</b>	Physiographic map showing various field traverses carried out in karanja-Murtizapur region	15
<b>Figure 3.2</b>	Morphometric analysis of Uma river basin	18
<b>Figure 3.3</b>	Hydro-geomorphological map of the study area.	26
<b>Figure 3.4</b>	Land system map of Uma river basin.	29
<b>Figure 3.5</b>	Legend for field Characters.	32
<b>Figure 4.1</b>	Geological map of the Uma river Basin	40
<b>Figure 4.2</b>	Detailed flow correlation diagram of various formations exposed in the study area.	41
<b>Figure 4.3</b>	Variation of transitional metal elements with altitude of Uma River Basin	48
<b>Figure 5.1</b>	Modal proportion of total phenocryst and various phases in phenocrystic assemblages from different chemical types of Uma River Basin	61
<b>Figure 5.2</b>	Range of compositional difference in plagioclase, clinopyroxene and olivine	64
<b>Figure 5.3</b>	Variation of Na <sub>2</sub> O Vs SiO <sub>2</sub> indicating the Tholeiitic nature of Basalt with fractuional trand	68
<b>Figure 5.4 (a)</b>	Variation of MgO Vs major element.	70
<b>Figure 5.4 (b)</b>	Variation of MgO Vs major element.	71
<b>Figure 5.5</b>	Variation of TiO <sub>2</sub> Vs MgO, P <sub>2</sub> O <sub>5</sub> , CaO/TiO <sub>2</sub> and K <sub>2</sub> O major element.	72
<b>Figure 5.6</b>	(Al <sub>2</sub> O <sub>3</sub> /SiO <sub>2</sub> ) Vs MgO and Al <sub>2</sub> O <sub>3</sub> vs CaO and Alkali indes variation	74
<b>Figure 5.7</b>	Harker variation diagram.	75
<b>Figure 5.8</b>	Variation of P <sub>2</sub> O <sub>5</sub> Vs major element.	76
<b>Figure 5.9</b>	Variation of major element Vs Zr	79
<b>Figure 5.10(a)</b>	Variation of Trace element Vs Zr.	81
<b>Figure 5.10(b)</b>	Variation of Trace element Vs Zr.	82