List of Figures

Figure 1.1: Map of Rajkot district showing Study Villages ................................................. 26
Figure 3.1: Map of Gujarat showing the physiographic units ........................................... 118
Figure 3.2: Map of Gujarat showing the drainage pattern ............................................... 119
Figure 3.3: Isohyets of Gujarat ......................................................................................... 120
Figure 3.4: Saurashtra map showing major faults and rifts .............................................. 124
Figure 3.5: Map of Saurashtra showing lineaments ......................................................... 126
Figure 3.6: Geological Map of Saurashtra ........................................................................ 126
Figure 3.7: Water availability and demand in Gujarat ...................................................... 129
Figure 3.8: A recharge well .............................................................................................. 161
Figure 4.1: Types of water flow (after Gunn, 1983) ........................................................... 178
Figure 4.2: Phases of soil ................................................................................................. 183
Figure 4.3: Relationship between the ratio of the AET, and the PET, PE, and the soil moisture storage ........................................................................................................... 184
Figure 4.4: shows an average moisture extraction pattern by plants ................................ 186
Figure 4.5: Key elements in potential groundwater recharge ........................................... 191
Figure 4.6: Input file sample for CRU_TS_READ_METEO programme ............................. 220
Figure 4.7: Main input file for NUT_MONTH ..................................................................... 222
Figure 4.8: Input file Water_down_under_soils.txt for soil characteristics ...................... 222
Figure 5.1: Scatter diagram between rainfall and recharge for Ambaredi ....................... 235
Figure 5.2: Rainfall-Recharge relation for Ambaredi ....................................................... 236
Figure 5.3: Rainfall versus probability of RF occurrence and frequency years ................ 236
Figure 5.4: Recharge versus Rainfall probability-Amberedi ............................................ 238
Figure 5.5: Relationship between rainfall, recharge and PET and AET for Ambaredi .. 239
Figure 5.6: Rainfall vs. rainfall frequency and probability of occurrence for Jalsikka .. 241
Figure 5.7: Rainfall-Recharge correlation for Jalsikka ..................................................... 242
Figure 5.9: Potential and Actual Evapotranspiration trend for Jalsikka ......................... 245
Figure 5.10: Rooting depth, FC and Recharge for Jalsikka cluster ................................. 248
Figure 5.11: Rooting depth versus available moisture for Jalsikka cluster ...................... 249
Figure 5.12: Relation between Rooting Depth, Recharge, soil moisture and WP .......... 250
Figure 5.13: Year to year change in AET for Jalsikka ...................................................... 252
Figure 5.14: Year to year change in AET for Ambaredi .................................................. 253
Figure 6.1: Income per household .................................................................................... 265
Figure 6.2: Change in irrigated area village wise ............................................................. 271
Figure 6.3: Change in unirrigated area village wise ......................................................... 272
Figures 6.4 to 6.9: Key crops raised during the three seasons of 2002-3 and 2003-4 .... 276
Figure 6.10: Various activities as part of watershed in Vithalpar ................................. 284
Figure 6.11: Change in pumpsets in percentage across river ........................................... 286
Figure 6.12: Change in pumping hours season wise and village wise per day per household .................................................................................................................................. 290
Figure 6.13: Average direct investment on WEM per household .................................... 293
Figure 6.14: Average expenditure on pipeline per household .......................................... 294
Figure 6.15: Stage of groundwater development –taluka versus village levels .......... 300
Figure 6.16: Recharge values obtained by various methods ............................................ 303