List of figures

1.1 A framework for livelihood analysis 19

4.1 Annual total rainfall for Maikona, 1973 – 1999 83
4.2 Mean monthly rainfall variation for Marsabit and Moyale, 1950 – 2001 84
4.3 Mean monthly rainfall for Maikona, 1973 – 1999 84
4.4 Mean monthly and annual max-min temperatures, Marsabit station 86
4.5 Trends in annual rainfall for selected stations in northern Kenya 88
4.6 Rainfall for Marsabit meteorological station 92
4.7 Three decades of cumulative annual rainfall for Marsabit Mountain, 1918-2001 94
4.8 Number of months of 100 mm rain in a row, Marsabit station, 1950 – 2001 97
4.9 Livestock population estimates (x10³), Marsabit District, 1963/64, 71/72, 1976-01 104
4.10 TLU measures for Marsabit District, 1963/64, 70, 72 and 1976-2001 108

5.1 Population trends of Marsabit District and Marsabit Mountain 139
5.2 Time of settlement of sample households 156
5.3 Year parents of second generation of settlers came to settle on the mountain 159
5.4 Number of rooms in the house and income in 1998 162
5.5 Number of household members and number of rooms in 1998 162
5.6 Maize and beans 168
5.7 Ugali 168
5.8 Rice 169
5.9 Chapatti 169
5.10 Kita 169
5.11 Milk 169
5.12 Meat 170
5.13 Eggs 170
5.14 Fruits 170
5.15 Vegetables 170
5.16 Major staple foods and frequency consumed per site 171
5.17 Major additional food types and frequency consumed per site 172

8.1 Karantina and Sagante wells, August 2000 292
9.2 Economic revenue proceeds of the forest 357
9.3 Revenues from Marsabit National Reserve/Park 358
9.4 Staff structure of FD and KWS compared, 1990 – 2000 365
9.5 Growth rates (%) in human populations and number of households on Marsabit Mountain 370
10.3 Livestock slaughters, Marsabit District, 1968, 1972-2001 388
10.4 Hide and skin sales, Marsabit District, 1966-68, 1972-2001 390
10.5 Cattle hide and skin off-takes, Marsabit District, 1972, 1976 – 2001 391
10.6 Livestock off-takes, Marsabit District, 1972, 1977-2001 394
10.7 National livestock slaughters, Kenya, 1961 – 2001 397
10.8 Average livestock prices, Marsabit District 400
10.9 Average monthly livestock prices 403
10.10 The cereal/meat price ratio (per kg), 1993 - 1998 408
10.11 Monthly calorific terms of trade (To) between livestock and maize-grain 410
10.14 National livestock export values, Kenya, 1961 – 2000 429
10.15 National livestock off-take, Kenya, 1961-2000 432
10.16 Total aid flows (millions of US$), Kenya, 1979 – 1996 433
10.17 Real GDP and foreign exchange rate, Kenya, 1979 – 2001 434
10.18 Livestock meat production/capita, Kenya 437
12.1 Changes in total cropland (ha) in Marsabit District, 1973 – 2001, sums of two growing seasons 508
12.2 Trends in agricultural land in hectares, bags harvested and population growth on Marsabit Mountain 509
12.3 Food need compared to actual food production from 1958 to 1999 510
12.4 Annual trend in area of maize planted (in ha) and maize harvested (in 90-kg bags) 511
12.5 Annual trend in area planted with beans (in ha) and harvest (in 90-kg bags) 512
12.6 Seasonal trend in maize planted (in ha) and maize harvested (in 90-kg bags) 515
12.7 Seasonal trends in area of beans planted (in ha) and harvested (in 90-kg bags) 516
12.8 Two fields in monoculture 529
12.9 One field intercropped 529
12.10 One patchy field 529
12.11 Total harvest of maize and beans in bags and total area planted in acres (n = 199) according to seasonal rainfall (Marsabit Mountain: six sample villages) 533
12.12 Seasonal harvest figures in bags per acre per class of land ownership 541
12.13 Correlation between total available land and harvest in the wet zone 541
12.14 Correlation between total available land and harvest in the dry zone 541
12.15 Correlation between livestock and grain production in the wet zone 546
12.16 Correlation between livestock and grain production in the dry zone 546

13.1 Number of trips, weights and share of site population on the mountain 572
13.2 Household ranking of the income sources 587

15.1 Trends of marketed-value of the main crops under irrigated agriculture 651
15.2 Bi-annual prices of horticultural crops and rainfall pattern compared 653
15.3 Illustration of annual water production and annual rainfall 660

16.1 Rainfall pattern and changes in composition of livestock species, Marsabit District 696

17.1 Absolute number of armed incidents, people killed, and rainfall figures 727

List of graphs

14.1 Livelihood profile scores in mean values per ecological zone 1998 625
14.2 Livelihood profile scores in mean values in 2000 per ecological zone 626
14.3 Livelihood profile scores per village in 1998 627
14.4 Scores on ‘ability’ per ecological zone 627
14.5 Scores on ‘ability’ per language region 627
14.6 Ability’ scores for scheme and non-scheme households 628
14.7 ‘Ability’ scores according to sex of family head 628
14.8 Ability scores per village in 1998 and 2000 629
14.9 Scores per eco-zone in 1998 and 2000 630
14.10 Scores per language zone in 1998 and 2000 630
14.11 Scores for scheme and non-scheme households in 1998 and 2000 631
14.12 Scores for male headed, female headed and female managed households in 1998 and 2000 632