

MICHAEL SILL AND JOHN KIRKBY



Earthscan Publications Ltd, London in association with the ETC Foundation

CONTENTS

| List of tables and figures 6 Foreword 9 | Nepal: population change 1971–81 82 Migration patterns within Nepal 86 Aspects of demography: fertility and mortality | |
|--|---|--|
| PART 1 | patterns 89 Aspects of Demography: nuptiality patterns 92 | |
| Nepal today 13 The political economy and development problems 18 | The geography of languages in Nepal 94 | |
| The Nepalese environment 23 | TOWNS AND INDUSTRY 99 | |
| Development planning in Nepal 28 | Towns in Nepal 99 Manufacturing industry in Nepal 103 Developing rural technology 106 | |
| PART 2 | LAND MANAGEMENT 110 | |
| INTRODUCTION 35 | Terrain evaluation 110 The Koshi Hills Area Rural Development | |
| NATURAL RESOURCES AND HAZARDS 38 Geology 38 | Programme 114 | |
| Landforms: hazards and resources 43 | LAND AND FOOD 119 | |
| Soils and soil erosion · 46 Ecological zones 51 | Population pressure on cultivated land 119 Farm size and land reform in Nepal 123 | |
| Forest use and deforestation 55 | Food crops and cash crops in Nepal 126 ENERGY 132 | |
| The climatic resource 57 | | |
| WATER AND ITS USES 61 | The energy crisis in Nepal 132 The energy crisis in Dhanusha District 135 | |
| River systems 61 Water management projects 63 | The energy economies of three villages in Dhanusha District 137 | |
| Irrigation 66 | TRANSPORT 141 | |
| TOURISM AND THE ENVIRONMENT 71 Tourism in Nepal 71 | ASPECTS OF EDUCATION IN NEPAL 146 | |
| Protected landscapes and ecosystems 74 | POSTSCRIPT 152 | |
| Mountain tourism and trekking in Nepal 78 | SELECT BIBLIOGRAPHY 153 | |
| PEOPLE AND LANGUAGE 80 Population distribution in Nepal 80 | INDEX 157 | |

FIGURES

| Fig. 1 | Nepal: location in South-Central Asia page 35 | | Distribution of fertility rates, 1981 page 90 |
|---------|---|---------|--|
| Fig. 2 | Planning regions and districts page 36 | | Population pyramid of Nepal, 1981 page 91 |
| Fig. 3 | Structure of East Nepalese Himalaya page 39 | Fig. 35 | Mean age at marriage of females, 1981 page 93 |
| Fig. 4 | Geology of Nepal page 40 | Fig. 36 | Distribution of Nepali speakers, 1981 page 96 |
| Fig. 5 | Minerals of Nepal page 42 | Fig. 37 | Principal languages of Nepal by ecological zone, |
| Fig. 6 | Major relief zones page 44 | | 1952–81 page 97 |
| Fig. 7 | Terai and Siwalik: landforms page 45 | Fig. 38 | Towns over 9,000 population, 1981 page 100 |
| Fig. 8 | Generalized soil types of Nepal page 47 | Fig. 39 | Rank-size patterns of the 20 largest towns in Nepal, |
| Fig. 9 | Marsyangdi watershed: relief page 48 | | 1952 and 1981 <i>page 101</i> |
| Fig. 10 | Marsyangdi watershed: soil types page 48 | Fig. 40 | Principal centres of manufacturing, 1984 page 102 |
| Fig. 11 | Deforestation and erosion: the classical model | Fig. 41 | Location of grain and oil mills, 1981–2 page 105 |
| | page 49 | | Concrete dome biogas plant page 107 |
| | Soil erosion processes on a Nepalese hillside page 50 | | Traditional and improved water mills page 108 |
| | Ecological zones of Nepal page 52 | Fig. 44 | Land systems map: part of the Terai–Siwalik |
| Fig. 14 | Cross-section of vegetation zones in the Himalaya | | boundary in east Dhanusha and west Siraha page 111 |
| | page 53 | Fig. 45 | Land utilization map: part of the Terai–Siwalik |
| Fig. 15 | Forest cover in Nepal page 56 | | boundary page 112 |
| | Climatic zones page 58 | Fig. 46 | Land capability map: part of the Terai–Siwalik |
| Fig. 17 | Annual precipitation in Nepal page 59 | | boundary page 113 |
| Fig. 18 | River systems of Nepal and hydrographs of selected | Fig. 47 | The KHARDEP area page 115 |
| | rivers page 62 | Fig. 48 | Development projects in the KHARDEP area |
| | Water management projects in Nepal page 64 | | page 116 |
| Fig. 20 | Irrigated land as a percentage of total agricultural | Fig. 49 | Cottage industry projects and drinking water |
| | land, 1982 page 67 | | schemes in the KHARDEP area page 117 |
| | Irrigation schemes in Nepal page 68 | Fig. 50 | Population density per square kilometre of arable |
| | A rower pump page 69 | | land, 1981 <i>page 121</i> |
| Fig. 23 | Distribution of shallow tube wells and rower pumps | Fig. 51 | Agricultural land as percentage of total area, 1985 |
| | in Nepal <i>page 70</i> | | page 122 |
| | Total tourist arrivals, 1962–86 page 72 | | Agriculture: mean holding size, 1982 page 125 |
| | Tourist arrivals by land and air page 73 | | Rice cultivation, 1986 page 128 |
| | Seasonal patterns of tourism, 1986 page 74 | | Two cash crops, 1986 page 130 |
| | Protected landscapes and ecosystems page 75 | Fig. 55 | Fuelwood demand and supply by ecological zones, |
| | Sagarmatha National Park page 77 | | 1983 page 134 |
| | Population density, 1981 page 81 | | Forest resources in Dhanusha District page 136 |
| | Districts by population size, 1981 page 83 | | Tadiya: village near the Siwalik forest page 138 |
| | Population change, 1971–81 page 85 | | Ramdaiya village <i>page 139</i> |
| Fig. 32 | Net inter-regional migration, 1971–81 page 87 | Fig. 59 | Goth Koilpur village page 140 |
| | | | |

- Fig. 60 Roads, railways and the ropeway in Nepal page 142
- Fig. 61 Air transport in Nepal page 144
- Fig. 62 Female literacy rates in Nepal page 148
- Fig. 63 Students with the school leaving certificate as a percentage of the primary school population, 1981 page 149
- Fig. 64 The distribution of graduates, 1981 page 150

TABLES

- Table 1 Major water management projects page 65 Table 2 Distribution of population by ecological zone, 1981 page 80 Table 3 Average annual population increase rates, 1961-81 page 84 Table 4 Proportion of the population in the three ecological zones, 1971-81 page 84 Table 5 Motives for migration, 1981 page 88 Table 6 Crude death rates and infant mortality rates, 1954-86 page 89 Table 7 Fertility rates by ecological zone, 1971–81 page 89 Table 8 Infant mortality rates: urban-rural and by ecological zone, 1962-81 page 91 Marital status of female population over ten years Table 9 old, 1952/54–1981 page 92 Table 10 Ever-married females as a proportion of the total female population over ten years old, 1981 page 92 Table 11 Mean age at marriage for females over ten years old, by ecological zone, 1981 page 94 Table 12 Urban growth rates, 1952-81 page 99 Table 13 Location of manufacturing: large and medium plants page 104 Table 14 Land-use of Kosi Hills page 115
- Table 16 Regional variations of population pressure: sample districts 1981 page 120

Table 15 United Kingdom capital aid to KHARDEP

page 116

- Table 17 The distribution of farm size in Nepal, 1961 and 1981 page 123
- Table 18 Size of landholdings, 1971 page 124
- Table 19 Redistribution of land under the 1964 Land Reform Act page 126
- Table 20 Production of major food grain crops, 1964/5–1986/7 page 127
- Table 21 Yields of major food crops, 1961/62–1986/87 page 127
- Table 22 Balance of trade in foodstuffs, 1976/77–1985/86 page 129
- Table 23 Chief cash crops: production and yields, 1979/80–1985/86 page 129
- Table 24 Nepal's energy demand by sector, 1983 page 133
- Table 25 Nepal: energy consumption page 133
- Table 26 Woody biomass resources in Dhanusha District, 1987 page 136
- Table 27 Biomass energy demand in Dhanusha District, 1987 page 136
- Table 28 Summary of fuel use, 1987 page 138
- Table 29 Nepalese airfields, 1956/7-1984 page 145
- Table 30 Literacy levels and access to primary education, 1971–81 page 146

PHOTOGRAPHS

- 1. The school bus in a Terai town page 13
- 2. Fuel wood and water pots for sale in a Terai town page 18
- 3. Rower Pump in use for irrigation raising water about 4 metres page 23
- 4. Sinate, open-fronted self-build shops in a Terai town page 28
- 5. Annapurna massif: high altitude valley scene with river terraces to the left of the plate and a braided river channel page 38
- 6. Shaduf system of irrigation in the Terai raising water to a higher field to water winter cereals. Row of fodder/fuel

- wood trees on the bund in the middle ground page 61
- 7. The Janaki Temple dedicated to Sita in Janakpur in the eastern Terai: a focus for Hindu pilgrims from India as well as Nepal *page 71*
- 8. A house in Penor, Terai page 80
- 9. Street scene in old Kathmandu. Ornately carved timberframed houses, along a street which was on the old trade route to Tibet. Crowded with shops and hawkers page 99
- 10. Terraced hillslopes on the northern rim of the Kathmandu valley to the north of Bhaktapur. Terracing extends to the top of the ridge, where the settlement is located. Population pressure means that little land is unused for cultivation. Fertilizer ready for spreading in the fields in the foreground page 110
- 11. Biogas plant in the village of Mahendra Nager, north of

- Janakpur in Dhanusha district. The concrete dome of the digester can be seen next to the boy, as can the slurry draining into the nearby vegetable plots page 119
- 12. Every little helps street scene, Janakpur page 132
- 13. Crowded train on the line from Janakpur to the Indian border at Jaynager: a narrow gauge, British-built line which was built to facilitate the export of timber from Terai to India page 141
- 14. Private primary school in Janakpur with the staff and a number of children. An increasingly common sight in Nepalese towns: uniformed children who are often transported to and from school by bicycle rickshaw page 146

Photographs by John Kirkby and Michael Sill.