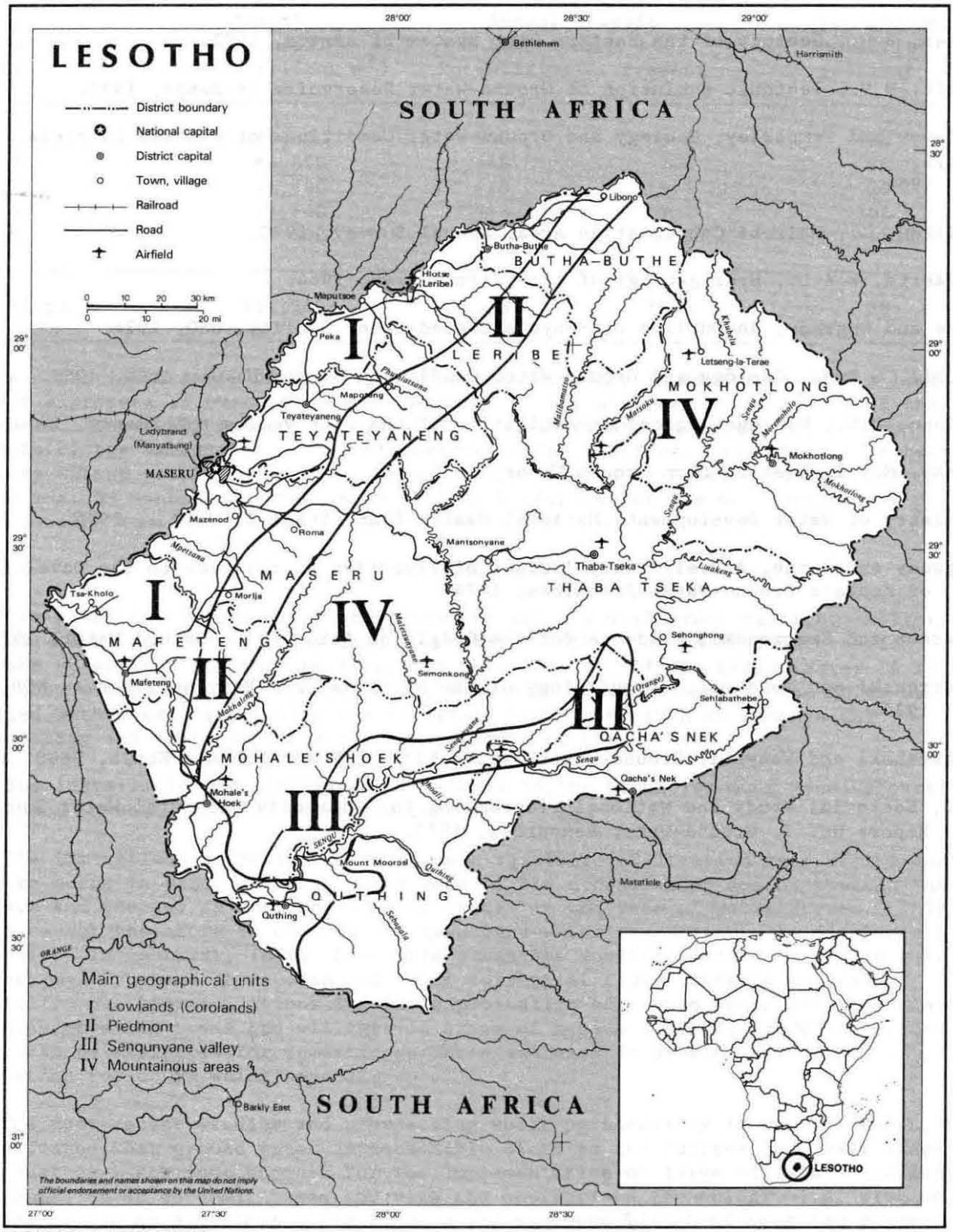
MAP 14. LESOTHO — GENERAL MAP



MAP NO.3484.10 UNITED NATIONS
MARCH 1989

LESOTHO

Area: 30,350 km^2
Population: 1.45 million

I. BACKGROUND

Lesotho is a high country (1,400 to over 3,000 m) situated in Southern Africa in the mountainous Drakensberg region. Its highest point, Thabana-Ntlenyana (3,482 m), is also he highest point in Southern Africa. The country has two regions: the mountains and the lowlands, with a transitional area of foothills rising from 1,700 m to the western overhang of the Maluti mountains.

The mountain region covers two-thirds of the country but contains only one-fifth of the population. The lowlands consist of Cave sandstone. Elements of basaltic plateaus are also found here. The mountain region consists mainly of basalts except in a few places in the Sengu, Sengunyane and Tsoelite valleys which have cut deep into the sedimentary formations.

Lesotho's climate ranges from semi-arid to wet, with summer beginning in September-October and ending in March-April. The summer is the rainy season, with the maximum rainfall in the north-east quarter of the mountains and daily temperatures in excess of 30 °C. January is the hottest month. A maximum temperature of 39.4 °C has been recorded at Maseru. Winter lasts from May to August. It snows almost every year in the mountains, while the lowlands receive light cold rain. In the plateau region the temperature can drop below zero. A temperature of -20.4 °C was recorded at Letseng-la-Draai in June 1967 (altitude: 3,050 m). The minimum average monthly temperature in the lowlands in June and July is usually 1-2 °C; it remains below 10 °C from April to October and below 5 °C from May-June until August.

The maximum evaporation occurs in summer at Maseru and the monthly amount ranges from 146 mm in June to 340 mm in December.

Surface water

The main hydrographic network is the basin of the Orange River, which is called Sengu in the national language. It rises in the Drakensberg on Mont-aux-Sources and flows first south then south-west, crossing the Republic of South Africa before reaching the Atlantic Ocean. Its main tributaries are the Caledon and the Makhaleng. The Caledon joins the Orange River in South Africa and the Makhaleng at the frontier. The Caledon has 6,700 km^2 of its basin in Lesotho and the Sengu 23,650 km^2 (including the Makhaleng area).

The Sengu is perennial, but the Caledon ran dry at Maseru during the long recent drought for periods of one to three weeks. Table I below presents data on the flows of the Sengu and the Caledon at a number of measuring stations. Table II presents other data for the same stations.

Table I

Mean monthly flow (million m^3) at two stations

River	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.
Sengu at Seaka: drainage basin 19,875 km^2	367	453	403	550	694	560	349	124	92	57	119	150
Caledon at Mohlokagala: drainage basin 5,600 km^2	40	63	59	108	106	93	63	19	9	7	17	13

Table II

Other data recorded at these stations

River	Mean annual flow ($10^6 m^3$)	Maximum flow (m^3/s)	Flow coefficient (%)	Sediment charge (t km^{-2} $year^{-1}$)
Sengu	4,153	9,184	20.9	210
Caledon	628	795	11.2	930

II. GEOLOGY

Stromberg formations (Upper Triassic) cover the whole of Lesotho. They are divided into four superimposed "groups", from top to bottom: the Drakensberg volcanic formations - basaltic lavas with dolerites and basaltic pumice 2,000 m thick; the white feldspathic Cave sandstones; the red strata - argillaceous sandstones and schists (50 to 500 m); and the Molteno strata - argillaceous sandstones and schists (500 m).

As mentioned above, the Drakensberg formations form the mountain region, while the lowlands and the Sengu valley consist of Cave sandstones. The transitional area contains both formations.

III. GROUND WATER

The Department of Water Affairs of the Ministry of Water, Energy and Mines is responsible for the study and evaluation of water resources in Lesotho. It has hydrology and hydrogeology divisions. The water-rights section is responsible for regulation, including the protection of water against pollution and the issue of water-use permits.

The Department of Water and Sanitation is responsible for urban water supplies throughout the country. Village water supplies are the responsibility of a special section of the Ministry of Rural Development.

The construction of dams and protection of water and soil are the responsibility of a special section in the Ministry of Agriculture.

Background

The Ministry of Water, Energy and Mines was established in 1978. The Ground-Water Division receives technical and financial assistance from the Italian Government.

The village water supply section has four engineers and a number of technicians, all nationals of Lesotho, and three cable drilling rigs.

Aquifers

The small springs of the Cave sandstones and the boreholes in this formation furnish low yields. The same is true of the red strata, but here the yields are even smaller and the boreholes are barren in most cases. Some good springs are found in the Molteno sandstones.

The Cave sandstones can furnish large yields from fractured zones or zones in contact with other formations such as the basalts.

Practically all the positive boreholes are situated along dykes. The Molteno strata can give yields of up to 5 l/s.

Hardly any data is available on the water quality.

IV. EXPLOITATION OF THE GROUND WATER

In addition to the government drilling unit mentioned above, there are two private companies which carry out water-drilling programmes with a total of 10 rigs, all cable. These rigs have a capacity of about 200 metres per month per rig. At present (1984) it is estimated that about 23 % of the population has a drinking-water supply.

Ground water is used to supply both villages and urban areas (see table below).

Water supplies for urban areas

Location	Existing wells		Planned wells		
	Number	Yield (l/s)	Number	Yield (l/s)	
Butha-Buthe	13 (*)	1 to 2.5	10	1 to 2.5	(*) including 4 public and 9 private.
Leribe	4 (*)	?	?	1 to 2.5	Molteno formation (*) including 3 private with low yield.
Maputsoe	2	1.5 to 2	-	-	Red and Molteno strata. The 2 boreholes were still not in use in 1984.
Peko	27	2 max.	-	-	Argillaceous sandstones and schists. Dykes.
Teyateyaneng	3	0.6	5	1 to 2.5	Cave sandstones and argillaceous schists of red strata.
Mahoteng	6	0.6	4	1 to 2.5	Cave sandstones and volcanic rocks.
Morija	8	0.4	-	-	Molteno stratum.
Mafeteng	9 (*)	up to 2	-	-	Molteno argillaceous sandstones and schists. Red strata, cave sandstones. Many dykes (*) including 3 of the hydraulics service.
Mohales Hock	14 (*)	0.5 to 1	-	-	Red strata (*) including 5 of the hydraulics service.
Quthing	5 in 2 volcanics	1	Valleys of Qomogomony	1 to 2.5	Cave sandstones overlain with Drakensberg basalts. Alluviums in the valleys.
Qachas	-	-	-	-	Cave sandstones - the springs in the Sejabatho valley yield almost 2 l/s.
Mokhotlong	-	-	-	-	No dyke identified in Drakensberg; the town is supplied from the river of the same name.

The Government has endorsed the objectives of the International Drinking Water Supply and Sanitation Decade and is sparing no effort to provide the people with adequate water supplies. A study was begun in 1977 to determine what works need to be carried out in order to provide the 12 secondary urban centres with an adequate water-supply system - works in which the drilling of wells is an important element. The programme was begun and is now continuing, like the rural water-supply program in better circumstances since the reorganization of the technical services and the incorporation of Italian technical assistance.