

## BAGMATI ZONE

The present study area lies more or less in the central region between longitudes 84°00'E to 86°05'E and latitudes 27°02'N to 28°24'N. This zone has eight districts, viz., (i) Dhading, (ii) Rasuwa, (iii) Sindhupalchowk, (iv) Kabhrepalanchowk, (v) Bhaktapur, (vi) Lalitpur, (vii) Nuwakot, and (viii) Kathmandu. It is almost semicircular in shape. The northern border limit of the zone is Ganesh Himal (7,406m) in Dhading, Langtang Himal (7,246m) in Rasuwa, and Jugal Himal (7,083m) in Sindhupalchowk lying along the autonomous region of Tibet on the other side. To the east lies Dolkha, Ramechhap, and Sindhuli of Janakpur Zone, and to the south Makwanpur of Narayani Zone, while its western side adjoins Gorkha District in Gandaki Zone (Figure 1).

The climate of three of the districts, Dhading, Rasuwa, and Sindhupalchowk ranges from tropical and subtropical to alpine, and there are perennial snow-covered high mountains to the north. In the remaining five districts, Kabhrepalanchowk, Bhaktapur, Lalitpur, Kathmandu, and Nuwakot, there are mid-hill mountains and wide fertile valleys, consisting of tropical, subtropical, and temperate zones. Nuwakot, however, has both subalpine and alpine zones.

The main river system in this zone is Trishuli in the west which merges with the Gandaki System of Nepal. Bagmati in the central region flows south and Indrawati, Sunkoshi, and Melamchi in the east join the Kosi System of east Nepal.

Bagmati Zone covers an area of 9,446.269sq. km., which is about 6.42 per cent of the total area of Nepal. The district-wise land use pattern in this zone is given in Figures 2, 3, and 4. The total population of this zone is 1,782,439 (1981 Census). This Zone has ethnic and cultural diversity, and is mostly inhabited by the, *Tamang, Brahmin, Chhetri, Newar, Gurung, Rai, Danuwar, Sunwar, and Limbu*. This zone is very important as it includes Kathmandu, the capital city of Nepal. All the districts have historical and cultural significance. Many places in this zone have temples and *gumba* (monasteries) with architectural designs of a high quality; they are famous for the artistic features developed by indigenous artisans.

All eight districts lie in the mountainous region of the central zone, covering the mid-hill mountains in the south to the High Himalayan range in the north; with low-lying parts of the hills in the south (457m), particularly along river beds, forming fertile valleys; 'tar', elevated plains in the hills, and mountains (Ganesh Himal has a height of 7,406 m). Great diversity in physiography and altitudinal variations has contributed to the occurrence of different climatic and vegetational zones that consist of potent and useful medicinal and aromatic plants.

### Bioclimatic and Vegetation Zones

#### *Tropical and Subtropical*

- a) The southernmost part of Bhaktapur and the southwestern parts of Dhading and Trishuli: the climate is warm and humid with altitudes between approximately 400m and up to



# Land Utilisation Bagmati Zone

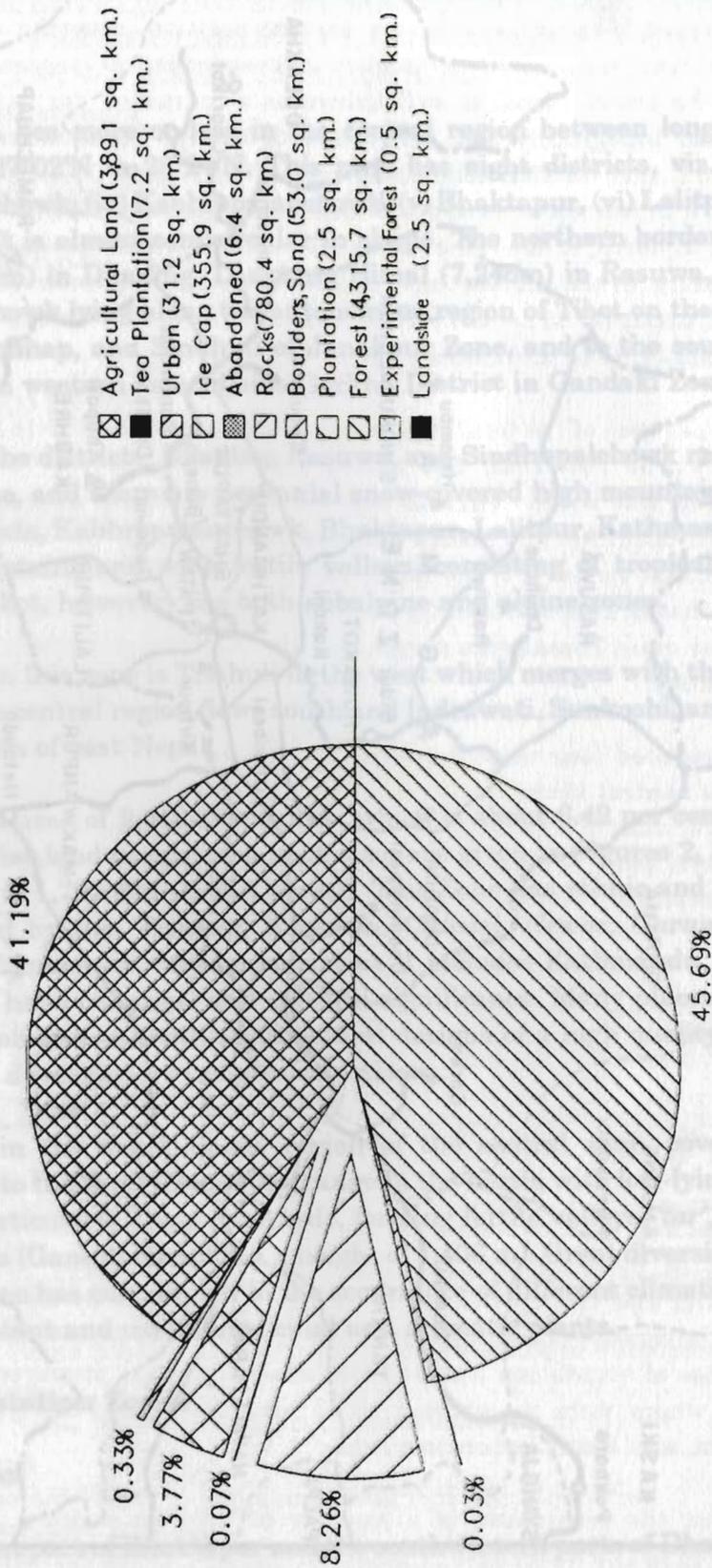
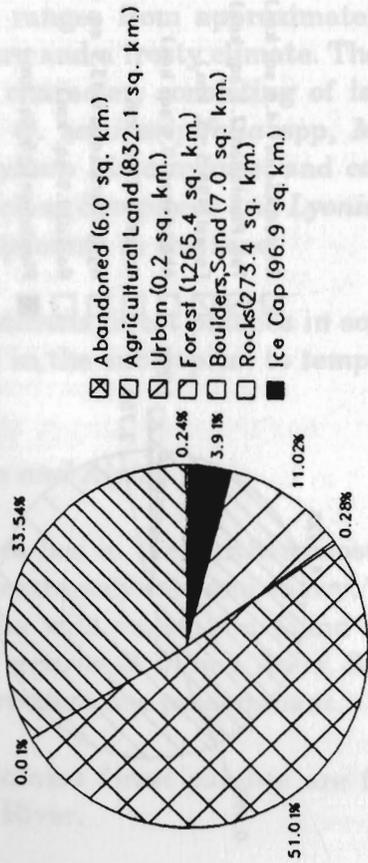


Figure 2

Source : Land Resource Mapping Project (LRMP) 1980/84

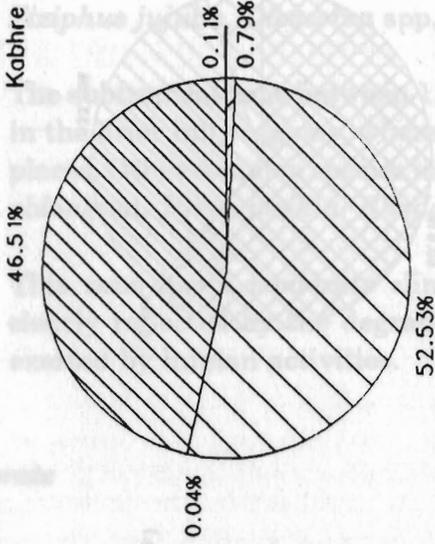
Mediterranean. Central Asiatic elements extend as far as the northern foothills of the Himalayas. The southern foothills below 1,500m in the Nepal Himalayas are, however, dominated by Indo-Gangetic flora.

### Land Utilisation Sindhupalchowk District

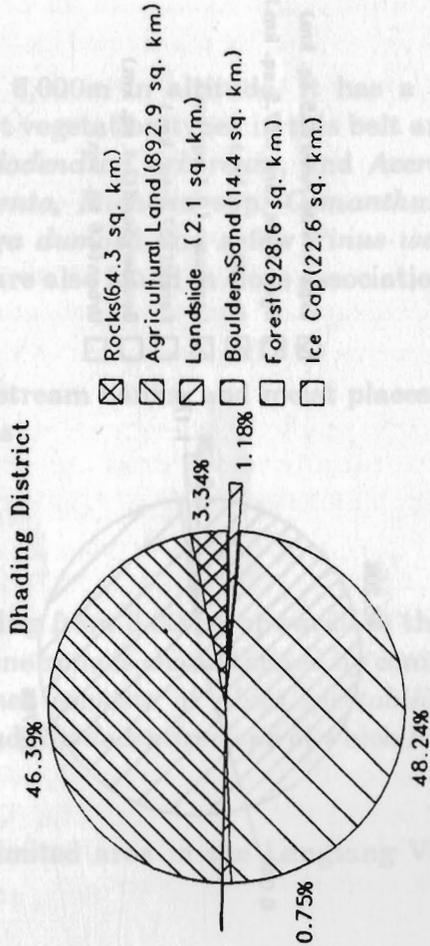


- Rocks (1.5 sq. km.)
- Agricultural Land (653.5 sq. km.)
- Landslide (0.1 sq. km.)
- Urban (0.6 sq. km.)
- Forest (738.0 sq. km.)
- Boulders,Sand (11.2 sq. km.)

### Land Utilisation Kabhre District

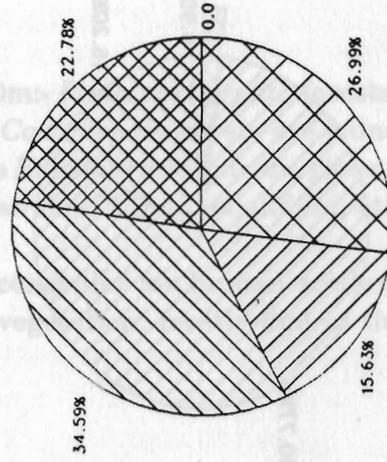


### Land Utilisation Dhading District



- Rocks (64.3 sq. km.)
- Agricultural Land (892.9 sq. km.)
- Landslide (2.1 sq. km.)
- Boulders,Sand (14.4 sq. km.)
- Forest (928.6 sq. km.)
- Ice Cap (22.6 sq. km.)

### Land Utilisation Rasuwa District

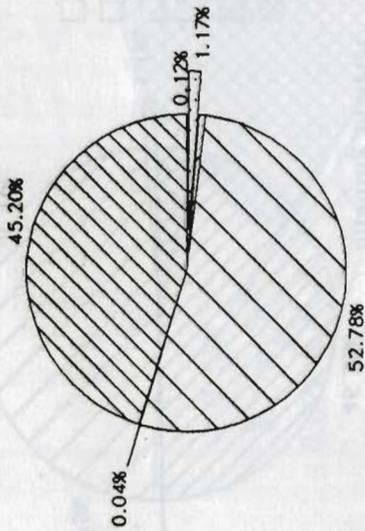


- Agricultural Land (344.5 sq. km.)
- Forest (522.9 sq. km.)
- Ice Cap (236.3 sq. km.)
- Rocks (408.0 sq. km.)
- Landslide (0.1 sq. km.)

Figure 3

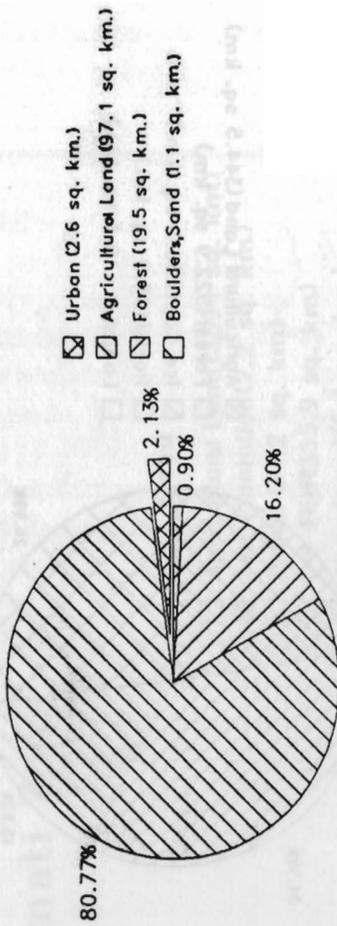
Source : Land Resource Mapping Project (LRMP) 1980/84

### Land Utilisation Lalitpur District



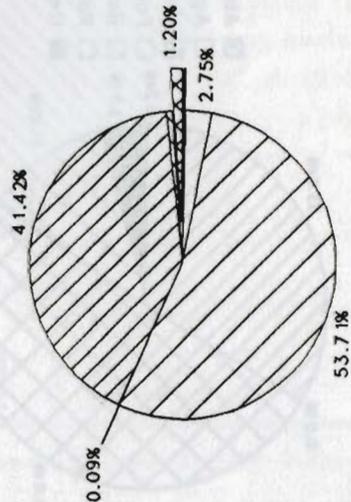
- Experimental Forest (0.5 sq. km.)
- Agricultural Land (177.5 sq. km.)
- Rocks (0.3 sq. km.)
- Landslide (0.1 sq. km.)
- Forest (207.3 sq. km.)
- Boulders,Sand (2.4 sq. km.)
- Urban (4.6 sq. km.)

### Land Utilisation Bhaktapur District



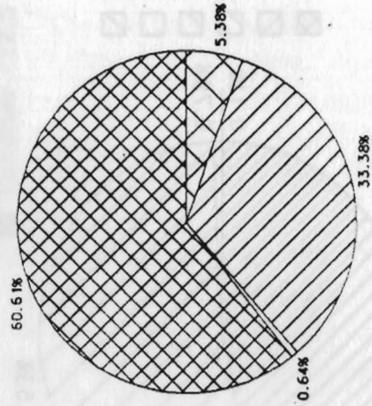
- Urban (2.6 sq. km.)
- Agricultural Land (97.1 sq. km.)
- Forest (19.5 sq. km.)
- Boulders,Sand (1.1 sq. km.)

### Land Utilisation Nuwakot District



- Boulders,Sand (14.4 sq. km.)
- Tea Plantation (7.3 sq. km.)
- Forest (496.5 sq. km.)
- Abandoned (0.4 sq. km.)
- Urban (1.1 sq. km.)
- Agricultural Land (643.9 sq. km.)
- Rocks (32.9 sq. km.)
- Plantation (2.5 sq. km.)

### Land Utilisation Kathmandu District



- Agricultural Land (249.7 sq. km.)
- Boulders,Sand (2.6 sq. km.)
- Forest (137.5 sq. km.)
- Urban (22.2 sq. km.)

Figure 4

Source : Land Resource Mapping Project (LRMP) 1980/84

1,000m. In these areas, *sal* forests (*Shorea robusta*) are predominant. This is a hardwood tree and is one of the important forest products of Nepal. It is associated with *Adina cordifolia*, *Dillenia pentagyna*, *Terminalia* spp, *Albizia* spp, *Salmalia malabarica*, *Semicarpus anacardium*, *Mallotus philippinensis*, *Lagerstroemia parvifolia*, *Cedrela toona*, etc. It is interspersed by deciduous *Acacia catechu* and *Dalbergia sissoo* on fresh alluvial and riverine terraces.

In some places where the distribution of *Shorea robusta* is restricted, mostly *Lagerstroemia parviflora*, *Adina cordifolia*, *Cedrela toona*, *Trema orientalis*, *Butea frondosa*, and other trees form patches of forest in association with shrubs and herbs *Crotalaria alata*, *Desmodium* spp., *Cassia tora*, *Osbeckia nepalensis*, *Plectranthus ternifolius*, *Rhus parviflora*, *Ziziphus jujuba*, *Dioscorea* spp, etc.

- b) The subtropical zone between 1,000m - 2,000m:- *Pinus roxburghii* forests are predominant in the drier hilly regions, whereas *Schima - Castanopsis* forests are found in relatively hot places. Other common species in this zone are *Engelhardtia spicata*, *Rhus succedanea*, *Acer oblongum*, *Pyrus pashia*, *Rhododendron arboreum*, *Lyonia ovalifolia*, etc.

This zone has a moderate climate and is congenial for human settlement. This fact is clearly reflected by the degrading natural vegetation, mostly due to the heavy pressure exerted by human activities.

### Temperate

This zone ranges from approximately 2,000m - 3,000m in altitude. It has a moderately cool temperature and a frosty climate. The main forest vegetation types in this belt are mixed, broad-leaved in character, consisting of laurels, *Rhododendron arboreum*, and *Acer*; oaks, *Quercus lamellosa*, *Q. semicarpifolia* spp, *Myrica esculenta*, *Michelia* spp, *Osmanthus fragrans*, and *Daphniphyllum himalayense*; and conifers, *Tsuga dumosa* and a few *Pinus wallichiana* trees. Species such as *Symplocos* and *Lyonia ovalifolia* are also found in close association with the main forest components in the zone.

*Alnus nepalensis* forest patches in some gullies, stream banks, and moist places are found most frequently in the subtropical to temperate regions.

### Sub-alpine and Alpine

These zones lie in the northernmost part, starting from 3,000m upwards to the snowline. The climate is extremely cold and snowy. The sub-alpine zone is characterised by coniferous and birch forests. The wild vegetation found in these zones consists of *Abies spectabilis*, *Betula utilis*, *Juniperus recurva*, *J. indica*, *Acers*, *Sorbus* spp, and *Rhododendron* spp of which *R. campanulatum* and *R. barbatum* are predominant.

*Larix himalaica* forest patches are found in a limited area in the Langtang Valley along the Langtang River.

Alpine vegetation mostly consists of various stunted bushy shrubs such as *Rhododendron setosum*, *Rh. anthopogon*, *Rh. lepidotum*, *Potentilla fruticosa*, *Polygonum vaccinifolium*, *Hippophae rhamnoides*, and *Ephedra gerardiana* in association with the most renowned and potent herbs of horticultural importance such as *Saussurea*, *Primula*, *Meconopsis*, *Corydalis*, *Ranunculus*, *Pedicularis*, *Gentiana*, *Polygonum*, *Swertia*, and *Cordyceps* and various beautiful cushion plants such as *Saxifraga*, *Arenaria* spp, and *Androsace* spp.

Grazing lands (locally know as "*kharka*") are an important feature of these areas.