Area Development Planning and Implementation

Discussion Paper Series

SETTLEMENTS SYSTEM, SMALL TOWNS AND MARKET CENTRES IN THE BAGMATI ZONE SUB-REGION

Prof. Dr. C.B. Shrestha
and
Prof. Dr. M.S. Manandhar

ADPI Series No. 5

March 1994

International Centre for Integrated Mountain Development

PREFACE

This study, by Dr. C.B. Shrestha and Dr. Mangal S. Manandhar, was undertaken to develop a better understanding of the socioeconomic role of small towns and market centres in the Bagmati Zone. The socioeconomic space - seen in terms of settlements, services, and linkages - is changing very rapidly on account of infrastructure, development interventions, and market forces. These, in turn, are making an impact on the physical space in relation to the intensity of use, management, and conservation. Market towns therefore play a very important role in economic and environmental changes and are also strongly influenced by these changes. No planning exercise can overlook the role of these small but vital elements of economic space. Their pace of development will clearly determine the extent to which they will succeed in reducing pressures on the Greater Kathmandu Valley area and also in promoting sustainable rural urban and economic and environmental linkages.

The analysis carried out by the authors of the data and conditions shows that markets and small towns have a major role to play in the future of the Bagmati Zone. Unfortunately, the policy concerns and investment decisions related to promoting the balanced growth of market towns has been ad hoc and minimal.

It is hoped that studies of this type will help to develop greater interest and policy attention in an important area such as market towns.

Contents

LIST OF TABLES

LIST OF FIGURES

ANNEXES

EXECUTIVE SUMMARY

The Bagmati Zone is a densely populated subregion characterised by a large number of settlements. There are more than 11,000 settlement units in this zone. Of them, about 10,600 are rural settlements and 476 central establishments. Despite the dominance of rural settlements, the network of urban centres is important. The local network consists of 283 central settlements without marketing functions and 187 market centres. Out of 187 market centres, 77 centres have more than 19 functional units. The 77 larger market centres, together with the three cities of the Kathmandu Valley, provide an effective network in integrating settlements. Although the market centres play an important role in the local settlement system, the city of Kathmandu emerges as a single dominant integrating force. An increasing number of both urban and rural settlements are tending to rely more on this city for various services. This has been facilitated by rapid improvements in accessibility in different areas. However, there are several localities which continue to be remote and without road connections.

The Bagmati Zone, with a 33 per cent urban population, has a long history of urban settlement. During successive historical periods, a number of market centres grew in the Bagmati Zone. Of these centres that came into being, many became relatively stable and unchanging, and others, with locational advantages, became larger with a greater array of functions. Others have ceased to exist due to changes in locational situations.

There is a hierarchical structure of market centres in the Bagmati Zone. Larger market centres, with more than 19 functional units, constitute a four-tier hierarchy. In the four-tier structure, there are three top-level centres, including Banepa, Bidur, and Thimi. Nine centres fall into the second tier. There are 17 centres in the third tier and 48 centres in the fourth tier. The different level market centres follow the order of 3:9:17:48.

It is found that the hierarchical order exists with regard to population sizes also, although it does not conform *in toto* to the hierarchical tier established in the study. At the apex, there are three market towns which have populations of more than 10,000. Bidur has the largest population size of 18,900 followed by Thimi (17,000) and Banepa (12,600). In the second class group, with a population of from 5,000 to 9,999, there are five centres ranging in population of from 9,600 in Dhulikhel to 5,300 in Panga. The third size-class (1,000 to 4,999) consists of 22 centres and the fourth size-class (less than 1,000) of 47 centres. Of the fourth size-class centres, 38 centres have populations of less than 500.

Functional magnitude appears to be a meaningful measure of the relative importance of market centres. There are five market towns that have more than 200 functional units. Banepa happens to be the largest town with 418 functional units. In the second class group, with 100 to 199 functional units, there are eight market centres. In this group, the highest number of 187 is found in Barahbise. The third group (50 to 99) consists of 21 centres. At the bottom is a group of 43 centres with 20 to 49 functional units.

It is found that the types of function increase with ascending order of market centres, larger centres having a greater array than the lower order centres. The functional array ranges from 14 in Banepa (the first order centre) to two in Adamghat (fourth order).

The development of infrastructural facilities in the market centres is much more closely related to geographical locations than to their relative importance. The centres located in close proximity to the city of Kathmandu have more infrastructural types than those more distant from Kathmandu. The locational arrangement of the local market centres shows a distinctly linear pattern with areal tendency in some localities of the Kathmandu and Kavrepalanchowk districts. The distribution pattern is highly concentrated rather than dispersed.

Most of the local market centres are dependant, to a large extent, on agriculture for sources of employment. The agricultural labour force is higher even in larger centres like Bidur and Thimi. Agriculture is important in most of the centres with large populations and in old settlements, and it is relatively unimportant in centres with small populations. Apart from agriculture, tertiary activities become the most important functional base in most centres. Industry is not a significant functional base except in a few centres of the Kathmandu Valley. Services have become important in most of the centres, while commercial activities are relatively dominant in larger centres located at important nodal points. Some of the centres are markedly supported by catering.

Small towns and market centres, in close proximity to the Greater Kathmandu Metropolis, contribute significantly to the national economy. Such centres outside the Kathmandu Valley play a significant role in contributing to local economic development. This becomes relatively important in the case of larger centres. Market centres are becoming an important linkage to agricultural development. They provide a marketing network for agricultural products as well as an effective delivery mechanism for the inputs of extension services. For extending services like health, education, and postal facilities, market centres are the effective focal points. However, local market centres do not appear to be important sources of off-farm employment. This is obvious outside the Kathmandu Valley, although some very modest development to this effect has taken place in some larger centres like Banepa and Bidur. Most of the centres in the valley are becoming important exceptions.

The conditions under which trade interaction occurs among the market centres in the Bagmati Zone subregion are demand for trading goods in all market centres and supply from six centres. Only Banepa and Bidur appear to be the important supply centres, contributing 6.3 and 8.8 per cent, respectively, of the total supply of goods to the local market centres. The most obvious feature of the local trade interaction pattern is the pre-eminence of the city of Kathmandu as the main source of trading goods to the local market centres. This city contributes about 57 per cent of the total supply of trading goods. Bharatpur has evolved as an important source for the market centres of the Dhading district. Foreign sources appear in two centres, Banepa and Barahbise. Internal interaction is important in some market centres. In other words, there is interaction of a centre with itself in a number of cases.

Rural-urban relationships occur in the Bagmati Zone importantly for three different services - 1) buying and selling farm products, 2) educational and health services, and 3) extension services. In most cases, it is for buying and selling farm products that the residents of the surrounding rural areas have most frequent, general, and intimate association with the market centres. For secondary education the linkage is intimate and close. However, the local people, although dependant on market centres for health services, do not use the local facilities so regularly owing to either the low level of facilities provided or knowledge gaps regarding local facilities. The average population size of retail service areas with regard to market centres

within the nesting order is 25,600. It is about 20,000 in connection with retail market areas of lower order centres (III and IV). The average service area for secondary education in a market centre is 7,500, and the average population size in the case of banking service areas is 12,400.

Most of the larger market centres have the potential to grow. Some of the centres like Thimi, Kirtipur, and Lubu of the Kathmandu Valley tend to benefit much from their locations in close proximity to the greater Kathmandu Metropolis. However, some others like Sankhu and Chapagaun are still peripheral in their locations with regard to the metropolitan area. Larger centres located outside the Kathmandu Valley have the potential to grow either as market towns (Banepa and Bidur) or as administrative centres (Dhading Besi, Chautara, and Dhulikhel). Barahbise may develop as a commercial town benefitting from its location close to Khasa, a trading centre across the border to the north of the lower order centres. Those with the potential advantages of their locations in the metropolitan area are likely to grow. Of such smaller centres located outside the valley, some have the potential to grow on a very modest scale and others do not show any potential to grow at all, at present.

There are both structural and functional gaps in the local network of market centres. The structural gap is obvious with regard to both lower and larger order market centres. Many people live beyond the limit of service areas of market centres. It is in such cases that the structural gap, with regard to marketing function, becomes apparent. In the secondary school education services there do not appear to be any serious gaps. A similar positive situation is found for health services also, although service efficiency is relatively poor in this respect. There are some functional gaps in connection with the range of commercial functions and extension services. Infrastructural gaps are serious in most cases.

The growth of market centres is basically an outcome of market forces. Any attempt made in the name of a grand design against market forces becomes unrealistic. The Government has to play the role of facilitator. In this capacity, the Government can facilitate the growth and development of small towns and market centres in several ways.

Four types of public investment can be distinguished with regard to market centres. First, investments have to be made to expand national output. For this, the most powerful machinery created by larger towns and cities needs to be fully exploited, and small towns and market centres can be relevant to this purpose. Second, small towns and market centres must be used fully to realise development opportunities lying elsewhere. Such centres should be made meaningful in terms of contribution to the development of the local economy. Third, strategies should aim at ensuring minimum services such as education, health, electricity, and drinking water for the population of the country as a whole. For the expansion of such services, market centres can provide an effective framework. Fourth, adequate investment should be make for expansion and improvement of infrastructural facilities in small towns and market centres.

There is an institutional vacuum in managing the affairs of non-municipal urban areas. This can be resolved by introducing institutional arrangements, such as lower status municipal bodies and separate cells, at district level and local authorities to look after the affairs of small towns and market centres. The implementation of such programmes should be channelled through a proper decentralisation scheme. Little is known about the dynamics of small towns and market centres. Continuing research is a must and a proper database system should be developed at the local level.

INTRODUCTION

General Perspective

It has been found that the size distribution of human settlements and the market centres/central places in developing countries are not conducive to fostering development or for distributing economic benefits in a more equitable way. A closely interlinked hierarchy of central places without leaving spatial gaps in urban functions has been regarded as a necessary prerequisite for economic development and equitable distribution of economic benefits and services.

In Nepal, however, some areas do not have market towns with adequate populations to support the necessary functions; other areas are prevented from offering many services and facilities because of inadequate investment and a low level of development; and still others are not physically and economically linked with each other, with their hinterland, and with larger cities. Simply, lack of a well developed and integrated hierarchy in central places has deprived a larger number of people of the services, facilities, and opportunities offered by urban areas. Thus, a well-developed and integrated hierarchy of market towns could provide access to many functions to a large number of people without each town having to provide them all. So, to develop a well integrated hierarchy and to enable market towns to function efficiently, investment in facilities and infrastructure is an imperative. But it is important to identify gaps in urban functions, facilities, and infrastructure as well as market towns with high growth potential for investment. A careful selection of market towns for further development will therefore 'maximise' efficiency, equity, and production. The present work is intended to present a critical analysis of the settlement system, with reference to market centres and towns, and to identify gaps in the provision of basic services and market centres.

Objectives

The objectives of the study are given below.

1. To map and assess the distribution and structure of functional settlements (small towns, market centres, and bazaars) in the Bagmati subregion in terms of
   - infrastructure and accessibility and
   - distribution of population resource endowment and provision of central services.

2. To examine the present role of each existing small town and market centre and to identify factors influencing/inhibiting their potential growth.

3. To develop criteria and bases for identifying small towns and market centre locations as priority areas for development.

4. To identify and map spatial gaps in the provision of basic services and recommend guidelines at the policy level to address the problem.

5. To look at institutional arrangements that could facilitate the growth of small towns and market centres in the Bagmati subregion.

Methodology

The study was based both on secondary information and on a field survey.

Voters' lists of 1991 were used to identify settlements and to estimate the population of the settlements. A total of 10,671 (including 77 market centres) settlements were identified, of which 2,220 were settlements with less than five households. From the total of 1,414 rural settlements with more than 49 households, it was possible to locate 826 settlements only on the map. Location of settlements was carried out with the help of the School Location Map (1: 125,000), Ministry of Education and Culture, HMG/Nepal, District Maps (1:125,000), Survey Department, HMG/Nepal, and Topo sheets (1:50,000).

The initial identification of market centres with more than 19 functional units was carried out on the basis of available information derived particularly from the Central Services' Maps (1:135,000), Suspension Bridge Division (including the market centres' study of the Kathmandu Valley sponsored by ICIMOD and an unpublished Ph. D. dissertation - "Hierarchy of Urban Centres in the Arniko Rajmarga Area", T.U., and the field survey). A total of 77 settlements with more than 19 functions were finally identified and located on the map by making necessary field checks.

A recording schedule was developed and used to enumerate the functional units and infrastructure of all 77 market centres (Annexes). Recording of the functional units of 55 centres was carried out by means of a field survey. Other sources were the works of C.B. Shrestha, Central Services' Maps, M.A. Thesis of Madhav Karki, Geography Department, T.U., 1989, and MSTP/MSUD Reports, Department of Urban Development, HMG, Nepal. Field checks, wherever necessary, were carried out.

Four different questionnaires were developed, one each for commercial units, industrial units, administrative units, and professional service units. Purposive sampling of the functional units was carried out in such a way that all types were included in the interview sample. Necessary information was also collected from local resource persons. In addition, information on service areas of schools, health centres/hospitals, and banks, was collected on the basis of registers. Similarly, information on vehicular traffic was also obtained.

The data were analysed by preparing a series of maps and scalograms.

SETTLEMENT SYSTEM

Characteristics of Rural Settlements

The settlement system in the Bagmati Zone has 10,121 rural settlements, 190 towns and market centres (including Kathmandu, Bhaktapur, and Lalitpur), and 283 central places without commercial functions (Tables 2.1 & 2.2).

Out of a total of 10,594 settlements, excluding 190 towns and large market centres, 9,180 settlements have less than 50 households and 2,220 have less than five households. There are 1,414 settlements with more than 49 households. Out of them, 826 were successfully located on the map, and the remaining 588 settlements could not be located since an accurate large-scale map was not available.

Table 2.1: Rural Settlements as Identified in the Voters' Lists

Unit	Located settlements with more than 49 households	Unlocated settlements with more than 49 households	Less than 50 households	Total settlements
Bagmati	826	588	9180	10594
Kathmandu	113	133	647	893
Lalitpur	73	37	526	636
Bhaktapur	53	19	131	203
Kavrepalanchowk	116	119	2384	2619
Sindhupalchowk	148	94	1951	2193
Dhading	113	109	2173	2395
Nuwakot	184	72	1158	1414
Rasuwa	26	5	210	241

Source: Survey

The subregion, apart from the Kathmandu, Bhaktapur, and Lalitpur municipalities, is served by 77 small towns and market centres, with more than 19 functional units, and 110 markets centres with less than 19 functional units, a combined total of 187. There are 283 more central areas without any commercial activity, but they provide certain services in the Bagmati Zone.

The distribution of rural settlements by district is given in Table 2.1. Kavrepalanchowk has the highest number of rural settlements, followed by Dhading and Sindhupalchowk, while Bhaktapur has the least.

The rural settlements are of two basic types, i.e., compact and agglomerated. Generally, Newar settlements are compact in form and non-Newar settlements are agglomerated. However, in the

northern parts of Dhading, Rasuwa, and Sindhupalchowk, the settlements are compact (hamlet type) but not as large as the rural Newar settlements inside or outside the Kathmandu Valley. Old Newar settlements even have a street plan, paved streets, and a nucleus. Other non-Newar rural settlements generally do not have a nucleus, nor a street plan, nor paved streets.

Table 2.2: Number of Market Centres

	Centres with commercial activity	Centres without commercial activity	Total
Bagmati	187 (out of which 77 have been identified as having more than 19 functions)	283	470
Kathmandu	30	10	40
Lalitpur	27	14	41
Bhaktapur	17	-	17
Kavrepalanchowk	22	68	90
Sindhupalchowk	21	68	89
Dhading	26	56	82
Nuwakot	19	57	76
Rasuwa	25	10	35

Source: Central Service Map, Suspension Bridge Division, HMG/Nepal 1989 and Field Survey

Most of the rural settlements inside the Kathmandu Valley are fairly large and compact. Large and compact settlements are possible because of the productive land and more sophisticated agricultural technology. Many of these settlements could be converted into market centres with the acquisition of some functions.

The rural settlements outside the Kathmandu Valley are not as large and compact, apart from some Newar settlements. The settlements are relatively large along the productive river valleys. Otherwise, the rural settlements located along the hill slopes are fairly small and agglomerated with a fair degree of dispersion. The low productivity of land in the hills discourages large and compact settlements.

Rural settlements are basically agriculture-based. Most of the settlements are exclusively residential farming villages. These settlements virtually lack any provision for services. As noted above, only 470 settlements of different sizes provide services and a large number of rural settlements do not have any service functions.

The imperfect integration pattern of settlements is another obvious characteristic of the settlement system in the Bagmati Zone. Although an integrated hierarchy of functional settlements is in the process of development, and although the level is above those discernible in other parts of the country, the settlement system is still not very effective in providing potential access to market centres of different sizes for people living throughout the Bagmati

Zone. As noted earlier, the network of market centres is inadequate if measured in terms of their numerical strength and distribution with reference to a vast number of rural settlements. Out of the 187 market centres, only 77 have more than 19 urban functional units, and these centres provide basic services to the rural population in the immediate vicinity. There does not appear to be a hierarchical order of rural-urban links. The city of Kathmandu is the single dominant integrating force in the settlement system of the study area. Most of the market centres and rural settlements rely heavily on this city for various services. This has been facilitated by the roads converging on Kathmandu from all directions. This is also due to the low level of functional attractions in other cities, towns, and larger market centres, and the rural people very often prefer Kathmandu to these centres for high quality goods and services.

Population Size of Rural Settlements

Rural settlements have been grouped into four classes on the basis of their population sizes.

1) Settlements with a population of more than 2,000
2) Settlements with a population of 1,000 to 2,000
3) Settlements with a population of 500 to 999
4) Settlements with a population of 250 to 499

Out of the total of 826 settlements located on the map, 546 have a population ranging from 250 to 499,227 have a population of 500 to 999, 40 have a population of 1,000 to 2,000, and 13 have a population of more than 2,000. These settlements follow the order of 13: 40: 227: 546.

It is clear that smaller rural settlements with less than 500 people are predominant. Larger rural settlements are found mostly in the districts of Kathmandu Valley, while smaller settlements are dominant outside the valley. The distribution of different size classes of rural settlements at district level is given in Table 2.3. The distribution pattern of different size classes of rural settlements is closely related to the level of urbanisation, agricultural resource base, and terrain. Larger rural settlements are distinctly concentrated in close proximity to the valley's cities and the Banepa and Bidur areas. Settlements are relatively small in areas that are distant from larger urban areas. The agricultural resource base appears to have an influence on the size of rural settlements. Larger settlements are associated with rich agricultural resource bases in different locations. This can be particularly observed in the Kathmandu Valley, Kavrepalanchowk, and Nuwakot. The local terrain is also another factor in the development of different size classes of rural settlements. Diverse terrain with complex topography is associated with small rural settlements. This is clearly seen in most parts of Sindhupalchowk and Dhading and in the southern parts of Lalitpur and Kavre districts. The historical process of development also affects the size of rural settlements. It should be noted that all these factors influence the rural settlements in varying degrees and in various ways.

Locational Characteristics of Rural Settlements

The rural settlements are less numerous in the northern part of the region. The altitude, rocky barren slopes, and the inhibitive climate are agricultural constraints. Therefore, settlements are located in a few suitable locations only.

In the hilly areas, the rural settlements are distributed along the gently sloping hills, river valleys, and flatlands or *tar*. The number and size of the settlements depend on the availability of agricultural land.

The number and size of the small towns and market centres are determined not only by the number of rural settlements but also by their size, the prosperity of the area, and road links. Kathmandu, Bhaktapur, and areas of Lalitpur within the valley comprise around 16 per cent of the total number of rural settlements and 40 per cent of the market centres of the region. In addition, the three cities of Kathmandu, Lalitpur, and Bhaktapur probably provide the highest number of services and facilities in the whole of Nepal, and the functional magnitude is also higher compared to other areas. The remaining five districts, Kavrepalanchowk, Sindhupalchowk, Dhading, Nuwakot, and Rasuwa comprise 84 per cent of the rural settlements and 60 per cent of the market centres, excluding the cities of Kathmandu, Lalitpur, and Bhaktapur. Also, in terms of area, the above-mentioned five districts cover far more area than the valley's districts. This in turn indicates that the rural settlements in these districts have far less access to urban functions.

Table 2.3: Size Classes of Rural Settlements

Units	Size Classes				Total
	Population more than 2000	1000 to 2000	500 to 999	250 to 499	
Bagmati Zone	13	40	227	546	826
Kathmandu	4	10	44	55	113
Lalitpur	2	5	15	51	73
Bhaktapur	7	10	23	13	53
Kavrepalanchowk	-	5	30	81	116
Sindhupalchowk	-	2	27	119	148
Dhading	-	2	26	85	113
Nuwakot	-	5	57	122	184
Rasuwa	-	1	5	20	26

Source: Estimated from Voters' Lists of 1991 (Election Commission)

According to the model developed by C.B. Shrestha, the factors influencing the location of rural settlements in Nepal consist of two sets. One relates to access and the other relates to negative factors which should be avoided. The first set of factors consists of water source, fuel, building materials, agricultural fields, grazing land, and market centres. The second set of factors consists of ravages caused by malaria, flood havoc, and slope aspects. The change in the objective conditions of the second set brought about significant changes in the local rural settlement pattern. The eradication of malaria greatly encouraged the movement of rural settlements from the ridges to the valleys. Similarly, the construction of roads resulted in the movement of people to areas along the roads, for the purposes of greater accessibility to urban functions and

exploitation of the commercial advantages of favourable locations. Such developments are noticeable, either in areas with agricultural potential such as the Panchkhal, Chack *Khola*, and Tadi *Khola* areas, or along the newly constructed highways. The latter development has greatly encouraged the growth of small market centres.

Level of Urbanisation in the Context of Small Towns and Market Centres

The Bagmati subregion is the most urbanised region in Nepal, with six municipalities and 74 small towns and market centres. Its population is 33.56 per cent urban - including small towns and market centres. The Kathmandu district has the highest urban population (67%) while Sindhupalchowk has the lowest (1.80%) (Table 2.4). Three districts, i.e., Sindhupalchowk, Dhading, and Rasuwa are the least urbanised with an urban population of less than two per cent.

In districts with municipalities, the majority of the urban population is concentrated in municipalities (Table 2.4). In Kathmandu, 92.5 per cent of the urban population dwells in Kathmandu city. Similar is the case with other districts as well. A hundred per cent of the urban population in Sindhupalchowk, Dhading, and Rasuwa belong to small towns and market centres. They are also the least urbanised districts.

Table 2.4: Percentage of Urban Population in the Bagmati Subregion

Unit	Market Centres	Total Population	Urban Population, Including Market Centres	Percentage Urban Population
Bagmati	77	2246868	54125	33.56
Kathmandu	15	668605	447514	66.93
Lalitpur	12	258474	150753	58.32
Bhaktapur	5	173097	83422	48.19
Kavrepalanchowk	12	324865	39036	12.017
Sindhupalchowk	9	260972	4700	1.80
Dhading	13	278488	5450	1.95
Nuwakot	8	245645	22550	9.18
Rasuwa	3	36768	700	1.90

Source: Voters' List 1991 and Census 1991
Note: Population of Municipalities derived from the 1991 Census

Location of Small Towns and Market Centres with Reference to Rural Settlements

The small towns and market centres in the Kathmandu Valley are closely spaced. In fact, the locational pattern of small towns and market centres in the valley is clustered. However,

market centres outside the valley are few and far between. The locational pattern of the small towns and market centres outside the valley is linear. Most of them are located along the highways and motorable roads. The concentration of market centres in certain localities closely follows the location of major rural settlements. This feature is discernible both outside and inside the Kathmandu Valley. The sparsely populated areas with widely scattered, small rural settlements in the south across the Mahabharat *Lekh* and in the northern mountainous areas are not associated with any recognisable market centre. In the north, the Rasuwa district is an exception, with a fair number of catering centres that have grown up around tourist traffic.

The ratio of small towns and market centres to rural settlements in the region comes to 1:137. This ratio, particularly considering the type of terrain and road network in the region, is an indication of the low accessibility level of rural settlements to urban functions. Only inside the Kathmandu Valley is the ratio low, not exceeding 1:60 (Table 2.5). This is also the area in the region with a well-developed road network. Therefore, the accessibility level of rural settlements to small towns and market centres is quite satisfactory. However, outside the Kathmandu Valley, only the settlements located along the roads have relatively easier access. Sindhupalchowk has the worst ratio of 1:244 and Bhaktapur has the lowest of 1:43. The proportion of urban population of municipalities and small towns and market centres is given in Table 2.6.

Table 2.5: Ratio of Rural Settlements to Small Towns/Market Centres

	Rural Settlements	Market Centres	Ratio
Bagmati	10,594	77	1:137
Kathmandu	893	15	1:60
Lalitpur	636	12	1:53
Bhaktapur	203	5	1:41
Kavrepalanchowk	2619	12	1:218
Sindhupalchowk	2193	9	1:244
Dhading	2395	13	1:184
Nuwakot	1414	8	1:177
Rasuwa	241	3	1:80

Source: Survey

Table 2.6: Proportion of Urban Population of Municipalities and Small Towns and Market Centres

(in percentages)

	Municipalities	Small Towns/Market Centres
Kathmandu	92.5	7.5
Lalitpur	77.8	22.2
Bhaktapur	73.3	26.7
Kavre (Dhulikhel, Banepa)	57.0	43.0
Nuwakot (Bidur)	83.6	16.0
Sindhupalchowk	-	100.00
Dhading	-	100.00
Rasuwa	100.00	100.00

Source: Survey

From Figure 1 it becomes clear that although this is the most urbanised region in the whole of Nepal, the overall picture is hardly satisfactory in terms of the ratio of market centres to rural settlements. The level of accessibility to urban functions is satisfactory only within the valley. Less than five per cent of the population in three districts, including Sindhupalchowk, Dhading, and Rasuwa have access to urban functions. Eight to 20 per cent of the population in the two districts of Kavre and Nuwakot have access to urban functions.

Ratio, either in terms of rural settlements or population, is not necessarily a true measure of the accessibility level of rural settlements to market centres in different areas. The virtual absence of market centres in areas away from the roads makes it clear that a large number of rural settlements do not have easy access to market centres. This situation should be seen in connection with the poor rural road network in Nepal. Rural road development is still in the preliminary stages and, in most cases, rural settlements can gain access to market centres only through foot trails. In such localities, visits to market centres are seasonal and periodic.

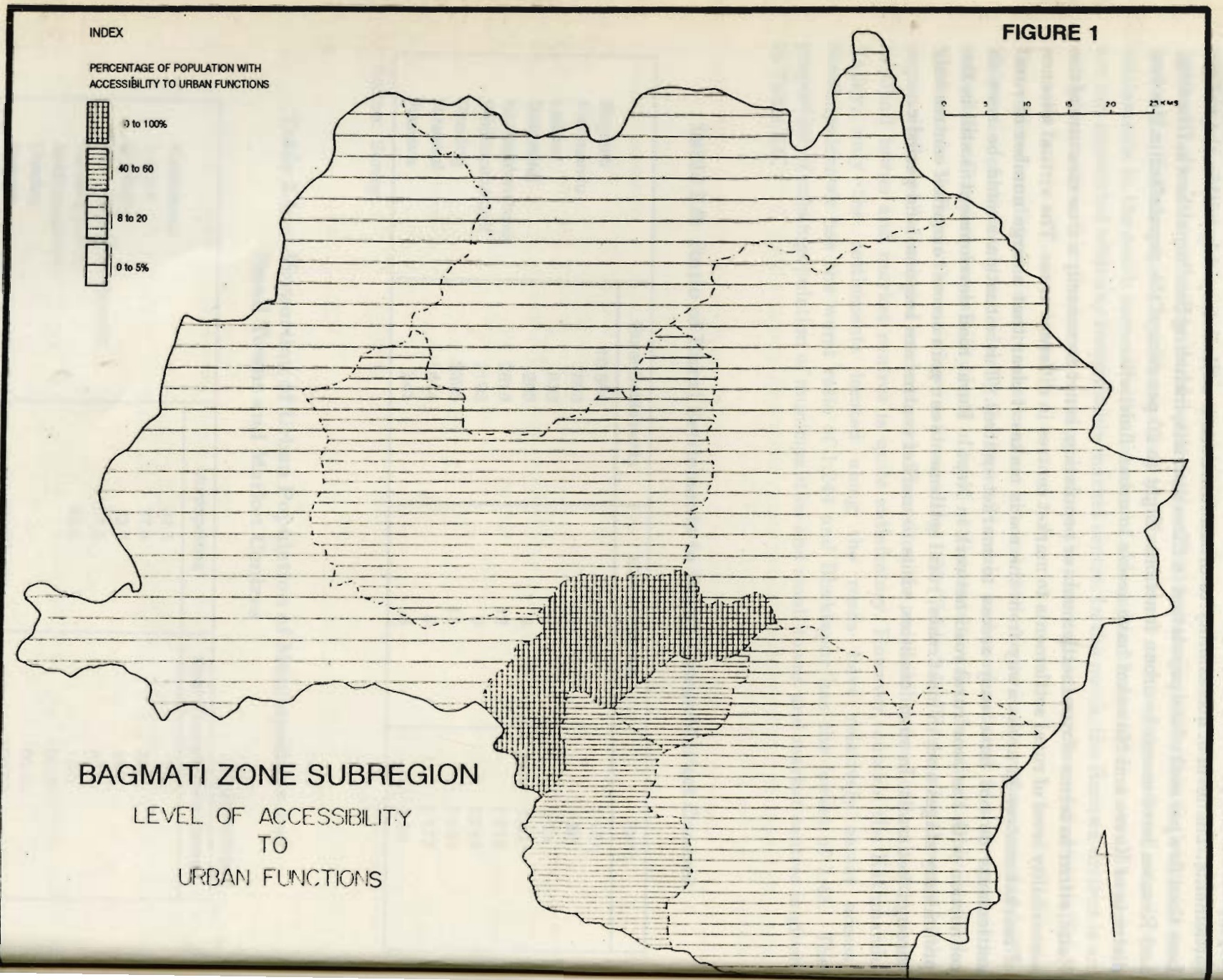

INDEX
PERCENTAGE OF POPULATION WITH ACCESSIBILITY TO URBAN FUNCTIONS
0 to 100%
40 to 60
8 to 20
0 to 5%
0 5 10 15 20 25 KMS
BAGMATI ZONE SUBREGION
LEVEL OF ACCESSIBILITY
TO
URBAN FUNCTIONS

FIGURE 1

ACCESSIBILITY PATTERN

Route Network

Throughout history, the route network in the Bagmati Zone subregion has been influenced by the strategic location of the valley's cities. The traditional network consists of main trails of varying quality, connecting points within the valley, and major trails or foot/animal roads connecting the valley with other areas. Both east-west and north-south traditional highways converge within the valley. For centuries the innumerable foot trails have been the only means of communication and transport for the vast majority of the people. At converging points within the valley, old market centres, i.e., Sundarijal, Dharmasthali, Sanga, and Thankot are located. The major trails connecting the valley's cities with other areas are dotted with small market centres, and the spatial pattern of these centres depends on the relative importance of the traditional trade route. North-south trade routes and associated market centres were important in the past when the valley's cities functioned as entrepots between Tibet in the north and India in the south. Important traditional highways used for this international trade included those that connected the valley with the Kuti and Rasuwa passes via different chains of market centres including 1) Sankhu and Nawalpur; 2) Bhaktapur, Nagarkot, Bhotsipa, Chautara, and Jalbire; 3) Bhaktapur, Sanga, Banepa, Hukse, old Dolalghat, and Barahbise; and 4) Sundarijal or Dharmasthali, Nuwakot, and Betrawati to the Rasuwa pass. The east-west routes gained importance with the growth of interregional trade. Such routes also converge both from the east and west on the Kathmandu Valley. Two important, traditional east-west trade routes converge on the valley, i.e., one from the east via Mangaltar, Dapcha, Khadpu, Dhulikhel, and Banepa and the other from the west via Arughat, Kalinge (Dhading), and Nuwakot. Two other noticeable routes from the south are 1) via Khopasi and Panauti and 2) via Chapagaun in Lalitpur.

The route network has been transformed considerably after the construction of new highways. Generally, the orientation of motorable roads has followed the traditional routes. This is noticeable in the cases of the Arniko Rajmarga, Prithivi Rajmarga, and Kathmandu-Trishuli Road. All the trade traffic of the old routes has been diverted along the newly opened highways. New market centres have emerged along the roads. Old ones, either bypassed by the roads or at a locational disadvantage, have declined while the old centres along the roads have acquired new significance.

At present, the route network in the Bagmati Zone is dominated by modern highways and roads. The route network consists of highways, a few feeder roads, innumerable trails connecting highways and roads, and a larger number of local roads in the Kathmandu Valley. Despite the development of a relatively dense network of routes in the Bagmati Zone, there are extensive tracts in remote areas which are not linked to the existing modern road network.

Trail Network

Trails play an important role in linking rural settlements to market centres. They are no longer important in terms of providing linkages between market centres. Only nine market centres (Mangaltar, Gothikhel, Chaughada, Kharanitar, Todke, Rigne, Khahare, and Majhgaon) out of a total of 77 in the region do not have road linkages and depend solely on trails for the movement of people and goods.

In the past, the main trails followed the north-south trade routes. The east-west trails became important with the growth of interregional long distance trade. With the decline of the entrepot function of the valley's cities and the construction of east-west oriented highways with feeder north-south roads, the importance of the north-south trail lessened. At the break of bulk point where the north-south trail meets the east-west highway, new market centres emerged. Adamghat, Bairani, and Benighat are some of the points where market centres developed.

The traditional importance of trails for long-distance trade has declined considerably. Trails located at a distance from new highways have lost their functional importance, while those that converge on new highways have become important routes connecting people in rural areas to market centres. The growth of a large number of catering centres at such converging points is indicative of the importance of these trails. These trails are important as connecting routes, but they would not promote the growth of important market centres mainly because, in areas away from the roads, the prices of trading commodities increased.

Road Network

Out of 77 market centres, only 15 do not have all-weather road connections. Out of 15 market centres, seven have fair weather road links (Jalbire, Dapcha, Khopasi, Lele, Kuntabesi, Sipaghat, and Melamchi) and nine have only trail connections (Mangaltar, Gothikhel, Chaughada, Samundratar, Kharanitar, Majhgaon, Dhahre, Rigne, and Todke). The Bagmati subregion still has market centres that are not physically linked with the other centres by road and this is indicative of inadequate integration in the region.

The Bagmati subregion has highways extending throughout its east-west length. The Lamosangu-Jiri road, the Arniko Rajmarg, roads in the valley, and the Prithivi Rajmarg combine to form a continuous axis throughout the length of the region from east to west. All the other roads are feeder roads linked to this axis. The Kathmandu-Trishuli-Dhunche road, the Tatopani-Lamosangu section of the Arniko Rajmarg, the Dhading Besi-Malekhu road, Chautara Dolalghat road, and Jalbire-Balephi road are all tributaries of the axis. One significant feature is that all roads lead to the Kathmandu Valley. Both east-west and north-south linkages are possible only through the valley.

There are a number of equally valid ways of estimating the density of road network. The most simple one is the statement of actual road length. The total road length (including all categories) in the Bagmati Zone is 1,314 kilometres out of which 724 kilometres lie in the Kathmandu Valley and 590 kilometres outside the valley. The longest length is observed to be in the Kathmandu district (441km), and the shortest length in the Kavre district (94km). The road network density can be expressed in a more meaningful way by relating road length to area and population. The road density in the Bagmati Zone is 13.93 kilometres per 100 square kilometres. This is far above the national average of 4.89 kilometres. Kathmandu district has the highest density (111.64km), while Sindhupalchowk and Dhading (Table 3.1) have the lowest density. It is clear from Table 3.1 that all the districts outside the valley fall below the zonal average, while those in the valley are above the zonal average.

The road density per 10,000 people in the Bagmati Zone is 5.84 kilometres, and this is well above the national average of 3.96. The highest density is found in Rasuwa with a relatively low

population size. Four districts, including Kathmandu, Lalitpur, Bhaktapur, and Sindhupalchowk are above the zonal average, while Dhading, Nuwakot, and Kavrepalanchowk fall below the zonal average (Table 3.1). Kavre has the lowest density.

Table 3.1: Road Density

Units	Road	Road Density	
	Length of all categories (km)	per 100 sq. km.	per 10,000 population
Nepal	7,330	14.89	3.96
Bagmati Zone	1,314	13.93	5.84
Kathmandu	441	111.64	6.59
Lalitpur	164	42.59	6.36
Bhaktapur	119	100.00	6.89
Kavrepalanchowk	94	6.73	2.89
Sindhupalchowk	161	6.33	6.17
Dhading	122	6.33	4.39
Nuwakot	106	9.45	4.30
Rasuwa	107	6.93	28.91

Source: Calculated from data based on Road Statistics 1990 and the Preliminary Census Report of 1991

Public Bus Service Frequency

The public bus service frequency is shown in Figure 2. Out of 77 market centres, 19 do not have access to public bus services, nine do not have road connections at all, and 10, although they have fair-road connections, do not have access to public bus services.

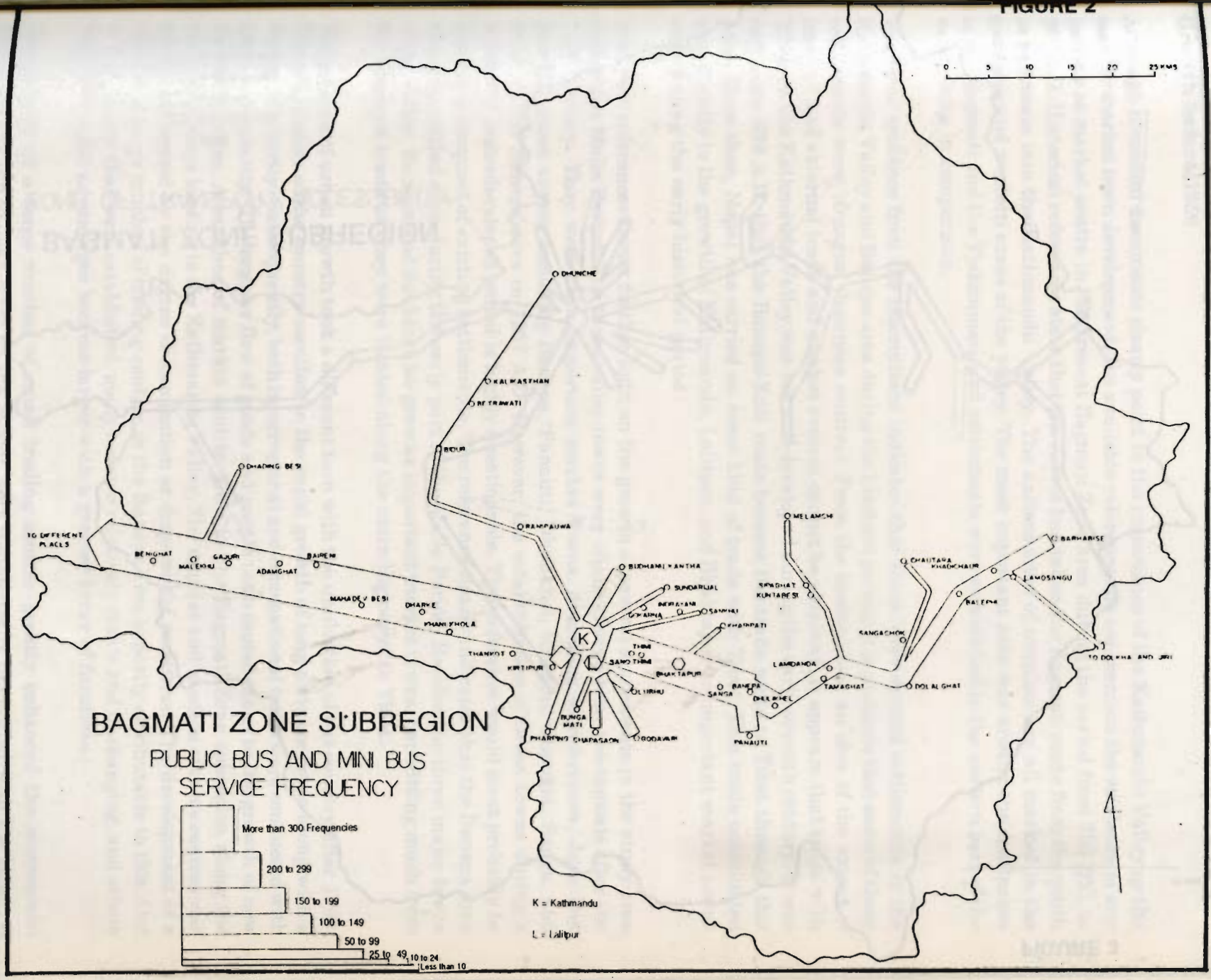
The frequency of bus services is highest westwards from Kathmandu. The second highest frequency is between Kathmandu and Banepa (eastwards). The east-west corridor westwards from Kathmandu probably has the highest frequency of buses plying in the whole of Nepal. However, it is of interest to note that none of the market centres along the corridor (Prithivi Rajmarga) are origin or destination points for any of the bus services. Although the market centres located here appear to have better access in terms of public bus services, the situation is different as these services are not frequently available for commuting to and from the local market centres. It should also be noted that Dapcha and Jalbire have access to occasional mini-bus services (not shown in Figure 2). Public mini-bus services plying the road to Melamchi are frequently unavailable during the rainy season.

Zones of Transport Accessibility

The zones of transport accessibility are shown in Figure 3. The most accessible zone extends east-west along the Prithivi Rajmarga, Arniko Rajmarga, and within the Kathmandu Valley.

Dhunche-Kathmandu is another easily accessible zone. The areas with all-weather roads and bus services have been designated as the most accessible. The areas with bus services and fair-weather roads (road to Melamchi) or the road connecting Dhading Besi, with a ferry but without a bridge over the Trishuli River, have been designated as accessible. The areas with fair-weather roads only and without bus services have been designated as fairly accessible, and areas without any road links as the least accessible. The least accessible transport zone in the Bagmati Zone includes the northern part of Dhading district with its market centres of Majhgaun, Khahre, Rigne, and Todke; the western and eastern parts of Nuwakot with Chaughada, Kharanitar, Samundratar, and Deorali market centres; the southern part of Lalitpur with Gothikhel; and the eastern part of Kavre with the market centre of Manglatar.

FIGURE 2


0 5 10 15 20 25 KMS
DHUNCHE
KALIKASTHAN
BETRAWATI
BIDUR
DHADING BESI
TO DIFFERENT PLACES
BENIGHAT
MALEKHU
GAJURI
ADAMGHAT
BAIRENI
RAMPAUWA
MAHADEV BESI
DHARKE
KHANIKHOLA
THANKOT
KIRTIPUR
BUDHANILKANTHA
SUNDARIJAL
BHIMTANI
SANKHU
KHAIRPATI
THIMI
SANO THIMI
BHAKTAPUR
DUHRHU
PHARPING
CHAPAGAON
GODAWARI
BUNGA MATI
SANGA
BANEPA
DHULIKHEL
PANAUTI
MELAMCHI
SINAGHAT
KUNTARESI
LAMOSANGU
BARHABISE
CHAUTARA KHADICHAUR
BALEFHI
SANGACHOK
LAMOSANGU
TAMAGHAT
DOLALGHAT
TO DOLKHA AND
BAGMATI ZONE SUBREGION
PUBLIC BUS AND MINI BUS
SERVICE FREQUENCY
More than 300 Frequencies
200 to 299
150 to 199
100 to 149
50 to 99
25 to 49
10 to 24
Less than 10
K = Kathmandu
L = Lalitpur

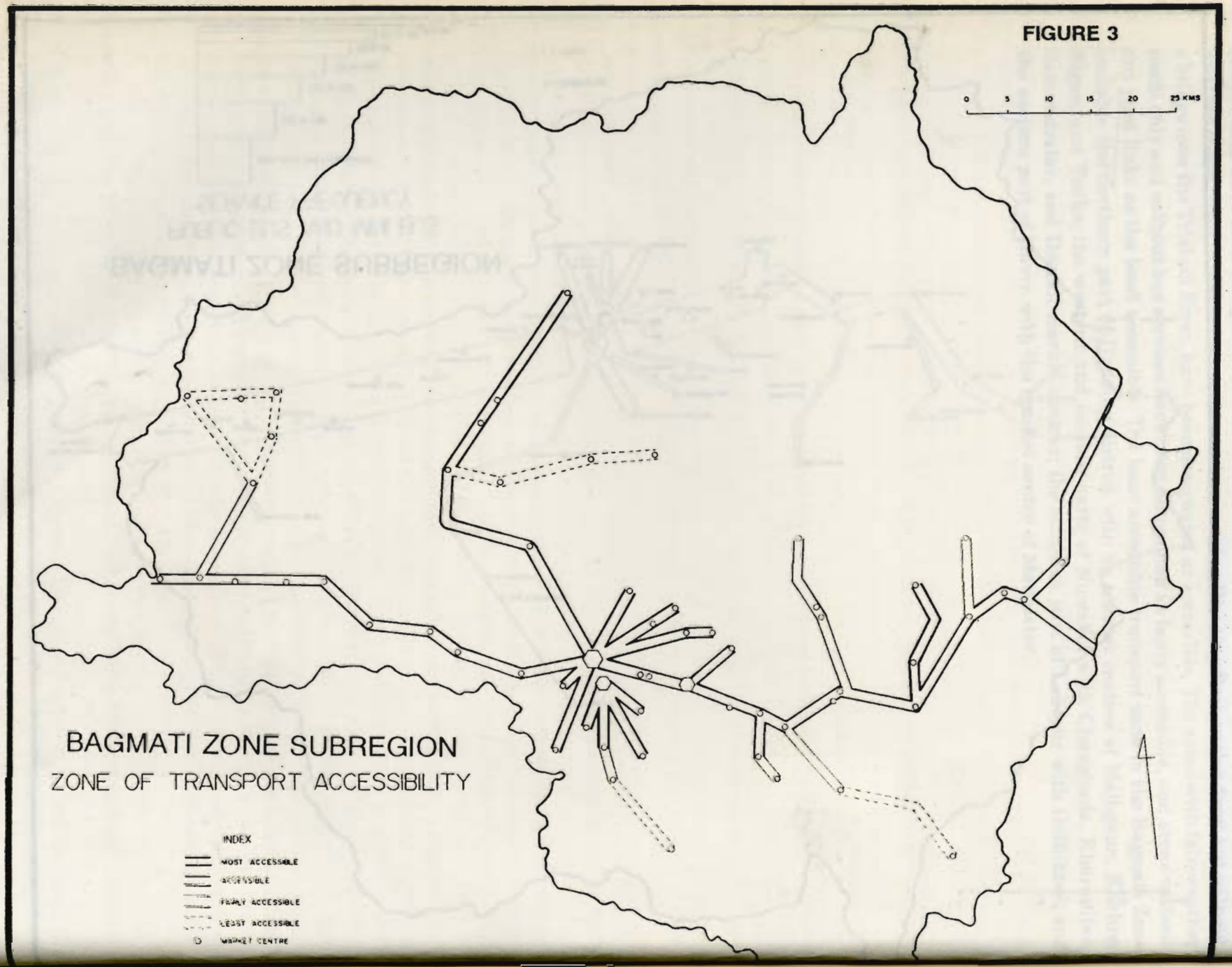


FIGURE 3
0 5 10 15 20 25 KMS
BAGMATI ZONE SUBREGION
ZONE OF TRANSPORT ACCESSIBILITY
INDEX
MOST ACCESSIBLE
ACCESSIBLE
FAIRLY ACCESSIBLE
LEAST ACCESSIBLE
MARKET CENTRE

GROWTH OF SMALL TOWNS AND MARKET CENTRES

Growth before 1950

Although historical documents clearly point to the importance of the Kathmandu Valley as the seat for market town development, the available references do not mention the existence of any important market centre in the present Bagmati Zone area during the period from 750 B.C. to 250 A.D. Historical references state that the Kirats had taken the Bagmati route from the south to penetrate into the Kathmandu Valley. The ancient sites of townlets are all marked in the southern and western areas of the valley. The most important area was around the confluence of the Bagmati and the Vishnumati, and settlements were established in the eastern part of the valley later in comparison.

Available evidence from the inscriptions indicates that there were several settlements in the Kathmandu Valley and Banepa area during the Licchavi period. It is probable that some of these settlements were '*drangas*' (business centres). From the inscriptions, an idea of the extent of internal and external trade and market centres cannot be obtained. It appears that trade with Tibet via the Kathmandu Valley was not well developed during the early seventh century. It was only after 639 A.D. that the Banepa-Kuti route became the trade route to Tibet through this area. Since then, Nepal has carried on some kind of trade with Tibet. This trade contributed significantly to the growth of Kathmandu, Lalitpur, and Bhaktapur as important market towns even during the early historical period.

Available references throw further light on the growth of several settlements in the study area during the Malla Period. The three valley towns were often referred to as the capitals after the 11th century. They were then important market towns. According to references, Jaya Dev founded seven towns, including Banepa, Panauti, Dhulikhel, Khadpu, Chaukot, Sanga, and Nala, in the Banepa area in 1257 A.D. However, the establishment of seven towns during a relatively underdeveloped period is highly questionable. This reference would most probably be about the conquest of existing settlements. The reference clearly indicates that the Banepa area was well settled even during the early part of the Malla Period. Besides the three major towns of the valley, Banepa and Sankhu also grew as important market towns, benefitting much from the entrepot trade as they were located along the main highways to Tibet.

The process of urban growth took a different turn with the unification of the country after 1769. The unification of the country resulted in the rapid growth of long distance trade along with a feeling of security. Consequently, both interregional and international trade were conducted with greater regularity. The regular flow of goods and people contributed much to the growth of new market centres. A number of market centres grew in the Bagmati Zone subregion along the major highways leading to the Kathmandu Valley. The number and location of these centres was partly influenced by the degree of localisation or dispersal of resources. The development of a relatively large number of trading centres in the Banepa area is partly attributable to this. Out of the centres that were established, many became relatively stable and unchanging, and others with locational advantages became larger with a greater array of functions.

The growth of a large number of small trading centres greatly enhanced the commercial importance of the valley's cities as the former were commercially integrated with the latter. A

number of townlets, such as Khadpu, Dhulikhel, Panauti, Chautara, Jalbire, Barahbise, Nuwakot, Chapagaun, Thankot, and Trishuli Bazaar emerged as important market centres in the study area. In addition, there were several other small centres.

The growth of new market centres in the study area was largely the result of the migration of Newar traders from the cities of the Kathmandu Valley. Banepa, Sankhu, Khadpu, and Panauti were the sources of migrants for the market centres which grew in their respective service areas.

Although a large number of market centres were established in the study area, only a very few of these could actually be termed small towns. As a result, the ratio between villages and large towns remained very high. This indicates the high degree of relative dependence of a village community on a single large trading centre. However, the large rural community had extremely limited access to such centres due to the lack of transport facilities.

Growth between 1950 to 1981

During this period, two major events took place that had considerable impact on the structure of market centres in the study area. One was the political change of 1951 and the other was the construction of modern highways including Tribhuvan Rajmarga, Arniko Rajmarga, the Trishuli-Kathmandu road, and Prithivi Rajmarga.

Nepal was virtually closed to foreigners until 1951. The political change of 1951 opened the country to the outside world. Its immediate impact was felt in Kathmandu. This city developed rapidly. This made the element of primacy more pronounced in the urban network of the country. Kathmandu offered additional attractions compared to other areas. The ever-increasing movement of goods and people from the other parts of the study area to this city can be attributed to this cause. This has an adverse effect on trading activities in other towns and townlets such as Lalitpur, Bhaktapur, Banepa, Panauti, Sankhu, and Khadpu.

During the same period, the abolition of open trade with Tibet was a new development which resulted in the decline of several market centres such as Chautara, Nawalpur, Jalbire, Balephi, Barahbise, and Nuwakot. The abrupt fall of Sankhu from its previous status as an important wholesale and retail trade centre was a notable event. Lalitpur and Bhaktapur also suffered greatly as their tributary area started to reorient to the Kathmandu market.

An estimate of the size of important small towns and market centres in the study area, as they existed before the construction of modern roads in the study area, can be obtained from Table 4.1.

The importance of some of the centres such as Dhulikhel, Chautara, Sunauli Bazaar (Dhading district), Nuwakot, and Dhunche were greatly enhanced after the establishment of district headquarters in those centres.

The most important event that affected the market centres of the study area during the period under review was the development of modern highways linking Kathmandu with other parts of the country. This development affected the market centre system in several ways.

Table 4.1: Population of Important Small Towns and Market Centres in 1952

Centres	Districts	Population
1. Kalimati	Kathmandu	2,200
2. Gokarna	Kathmandu	200
3. Sundarijal	Kathmandu	800
4. Budhanilkantha	Kathmandu	400
5. Tokha	Kathmandu	3,000
6. Battisputali	Kathmandu	2,000
7. Deopatan	Kathmandu	500
8. Baudha	Kathmandu	600
9. Sankhu	Kathmandu	3,100
11. Khokana	Lalitpur	2,600
12. Thicho	Lalitpur	2,500
13. Thaiba	Lalitpur	800
14. Panga	Lalitpur	2,700
15. Balambu	Lalitpur	900
16. Bungmati	Lalitpur	1,700
17. Lubhu	Lalitpur	2,200
18. Sunakothi	Lalitpur	1,400
19. Chapagaun	Lalitpur	1,700
20. Harishidhi	Lalitpur	1,300
21. Kirtipur	Lalitpur	700
22. Bode	Bhaktapur	2,500
23. Changu	Bhaktapur	2,300
24. Thimi	Bhaktapur	8,700
25. Nuwakot	Nuwakot	1,200
26. Trishuli Bazaar	Nuwakot	1,100
27. Batar	Nuwakot	1,100
28. Belkot	Nuwakot	200
29. Dhulikhel	Kavrepalanchowk	3,300
30. Banepa	Kavrepalanchowk	4,500
31. Panauti	Kavrepalanchowk	2,200
32. Nala	Kavrepalanchowk	1,000
33. Panchkhal	Kavrepalanchowk	100
34. Chautara	Sindhupalchowk	500
35. Barahbise	Sindhupalchowk	1,600

Source: Census of Nepal, CBS 1956

One outcome was the disappearance of trading centres located along the traditional highways (trails), i.e., Chisapani, Deopur, and Hukse in the Kavrepalanchowk district, and Shipa, Bhotshipa, and Purano Dolalghat in the Sindhupalchowk district. Some centres, e.g., Nawalpur, Jalbire, and Nuwakot declined further. The commercial importance of some important small towns such as Sankhu, Chapagaun, and old Thankot Bazaar declined considerably as they lost the advantage of pedestrian traffic generated by the valley's cities. Another important development was the closer integration of market centres with a single, large city. Partly due to the construction of modern roads and partly to the increasing concentration of economic activities in the city of Kathmandu, the local market centres developed closer commercial linkages with this city.

Road transport facilities greatly improved the conditions of some small towns, e.g., Banepa, Bidur, Barahbise, and Dhulikhel. In addition to adopting new functions, these centres continued to extend their market areas. The completion of a gravel road from Dolalghat to Chautara in 1976 improved the situation in Chautara also.

The new highways greatly changed the spatial pattern of nodal points. In a number of places, new nodal points emerged and they soon became important market centres. Out of the new market centres that developed during the period under review, the important centres include Lamosangu, Lamidanda, and New Dolalghat in the Arniko Rajmarga; Ranipauwa on the Trishuli road; and Naubise, Bairani, Mahadev Besi, Gajuri, and Malekhu on the Prithivi Rajmarga. Some of these centres, e.g., Lamosangu, Lamidanda, Dolalghat, and Gajuri soon played a significant role in commercial functions, while others, e.g., Naubise, Malekhu, and Balephi developed mainly as catering centres. Three new centres developed along the new fair-weather road leading to Melamchi, i.e., Hinguwapati, Sipaghat, and Bahunepati.

With the development of road transport facilities, the importance of several centres was considerably enhanced. They performed new additional functions such as health and education services, banking services, administrative services, and several professional and personal services. Such developments were particularly noticeable in Banepa, Bidur, Dhulikhel, Barahbise, and Chautara.

Growth after 1981

An important feature of market centres that developed recently is the expansion of functional array. Banepa and Bidur perform all the functions which are normally found only in a fully fledged Nepalese town. An important exception is the absence of cinema halls in Bidur. Initial support for the growth of these towns was provided by the rich agricultural resource base of the areas in which they are located. Later their central value increased considerably with their access to road transport facilities.

The rapid urbanisation and the growth of a number of important market centres are indicative of the emerging comparative advantages of different localities in the Bagmati Zone. The Kathmandu Valley has the most extensive urban network. Their location in the valley has enabled even smaller towns like Thimi, Kirtipur, Harishidhi, and Sanuthimi to become important manufacturing centres with access to educational facilities. The growth of several industrial functions, including brick works, carpet and garment manufacture, production o

tourist-oriented goods, and other functions in a number of market centres in the Kathmandu Valley, is due to their advantageous location.

The recent efforts to exploit the local agricultural resources in a more intensive manner have resulted in the growth of new agro-service centres. Tamaghat and Kunta Besi in the Panchkhal area of the Kavrepalanchowk district and Kharanitar and Samundratar in the Trishuli valley area of the Nuwakot district are new centres with growths that are based on the rich, local agricultural resource base.

The development of services, i.e., education, health, postal, and extension services, has also contributed to the growth of market centres. Initially, these sites developed as service points, and later those with locational advantage witnessed the growth of commercial activities. Lele and Gothikhel in the Lalitpur district, Sangachowk in Sindhupalchowk district, Deorali in Nuwakot, and Kalikasthan in Rasuwa are some good examples of such points.

The relative importance of some centres, e.g., Panauti, Melamchi, Dhading Besi, and Chautara, has increased considerably with the introduction of public bus services in these places. These places could benefit much from the advantage of their location at break-of-bulk between the road transport and the trail. Of these centres, Melamchi did not exist as a market centre even as late as 1977. The relative importance of Dhading Besi and Chautara has increased, mostly due to expansion of administrative activities. Dhulikhel and Dhunche could not derive much advantage from their positions as the district headquarters due to their locational disadvantages, created either by competition of the superior centre (Banepa) in the case of the former or by the sparsely populated hinterland in the case of the latter.

The fast development of public bus transport facilities has given rise to new catering centres. The development of Khanikhola and Khadichaur at new focal points of the highways is an example of such growth, which has taken place exclusively with the support of catering activities.

The fast development of Dhading Besi as a district headquarters and a market town has generated heavy traffic along the routes leading to this centre. Depending on this traffic, three new small market centres (Todke, Rigne, and Majhgaun) have developed recently in the northern part of Dhading district.

Some recent developments have had negative effects on some market centres. Bahunepati and Naubise have ceased to exist as important market centres due to the transfer of nodal points from these centres to other nearby localities (Melamchi in the former case and Khanikhola in the latter). The Shipaghat and Lamidanda centres have declined due to the growth of new centres in close proximity. Gajuri, an important centre in Dhading district, experienced stagnant growth as Dhading Besi developed into an important market town in the north. Lamosangu also has lost its original importance due to the reorientation of its tributary area to other centres.

Out of the total number of market centres covered in the present study, three, including Banepa, Bidur, and Dhulikhel have been recently recognised as municipalities. Banepa and Bidur now have a population of more than 10,000, while Dhulikhel has a population of about 9,000. Four centres have a population of more than 5,000, including Kirtipur, Panga, Sidhipur, and Lubhu.

Most of the other centres are small market centres in terms of population size. The total urban population, including the municipal population of the valley's cities and the population of the market centres (covered in this study), has now reached approximately 33 per cent of the total population of the Bagmati Zone. The percentage share of the population of small towns and market centres comes to about five per cent.

SYSTEM OF SMALL TOWNS AND MARKET CENTRES

Network of Small Towns and Market Centres

There is a good network of functional settlements in the Bagmati Zone subregion. These settlements belong to two distinct classes, i.e., those with commercial functions and those without commercial activities. There are altogether 283 central areas without commercial activities. Their number is relatively small in the districts of the Kathmandu Valley, whereas they are relatively numerous in other districts (Table 5.1). This spatial variation in the network of non-commercial settlements could be a meaningful indicator in measuring the development level of the market economy. Apparently the network of commercial settlements or market centres is poor in areas where the level of the market economy is low, and there is dominance of non-commercial central areas in such localities. This can be observed in a number of remote areas of the Kavrepalanchowk, Sindhupalchowk, and Dhading districts. The remote Himalayan district of Rasuwa is an exception, with a good network of commercial settlements. This is obviously attributable to the development of trekking activities in this Himalayan district.

Table 5.1: Network of Market Centres and Central Areas

Units	No. of Market Centres			No. of central areas without trading activities
	Larger centres with more than 19 functional units	Smaller centres with less than 20 functional units	Total	
Bagmati Zone	77	110	187	283
Kathmandu	15	15	30	10
Lalitpur	12	15	27	14
Bhaktapur	5	12	17	-
Kavrepalanchowk	12	10	22	68
Sindhupalchowk	9	12	21	68
Dhading	13	13	26	56
Nuwakot	8	11	19	57
Rasuwa	3	22	25	10

Source: Survey

There are all together 187 market centres in the Bagmati Zone. Out of these 77 are larger centres with more than 19 functional units, and the number of market centres with less than 20 functional units is 110. Kathmandu district has the highest number (30), followed by Lalitpur and Kavrepalanchowk districts (Table 5.1). In Bhaktapur district, trading activities take place in all central areas. The ratio of larger centres to smaller centres with less than 20 functional units is given in Table 5.2. It is relatively high in Kavrepalanchowk, Kathmandu, and Dhading districts. The ratio is very low in Rasuwa district. Bhaktapur district also has a low ratio.

Table 5.2: Ratio of Larger Market Centres

Unit	Larger Centres (No)	Smaller Centres (No)	Ratio of Larger Centres (No)
Bagmati Zone	77	110	1:1.4
Kathmandu	15	15	1:1
Lalitpur	12	15	1:1.2
Bhaktapur	5	12	1:2.4
Kavrepalanchowk	12	10	1:0.8
Sindhupalchowk	9	12	1:1.3
Dhading	13	13	1:1
Nuwakot	8	11	1:1.4
Rasuwa	3	22	1:7.3

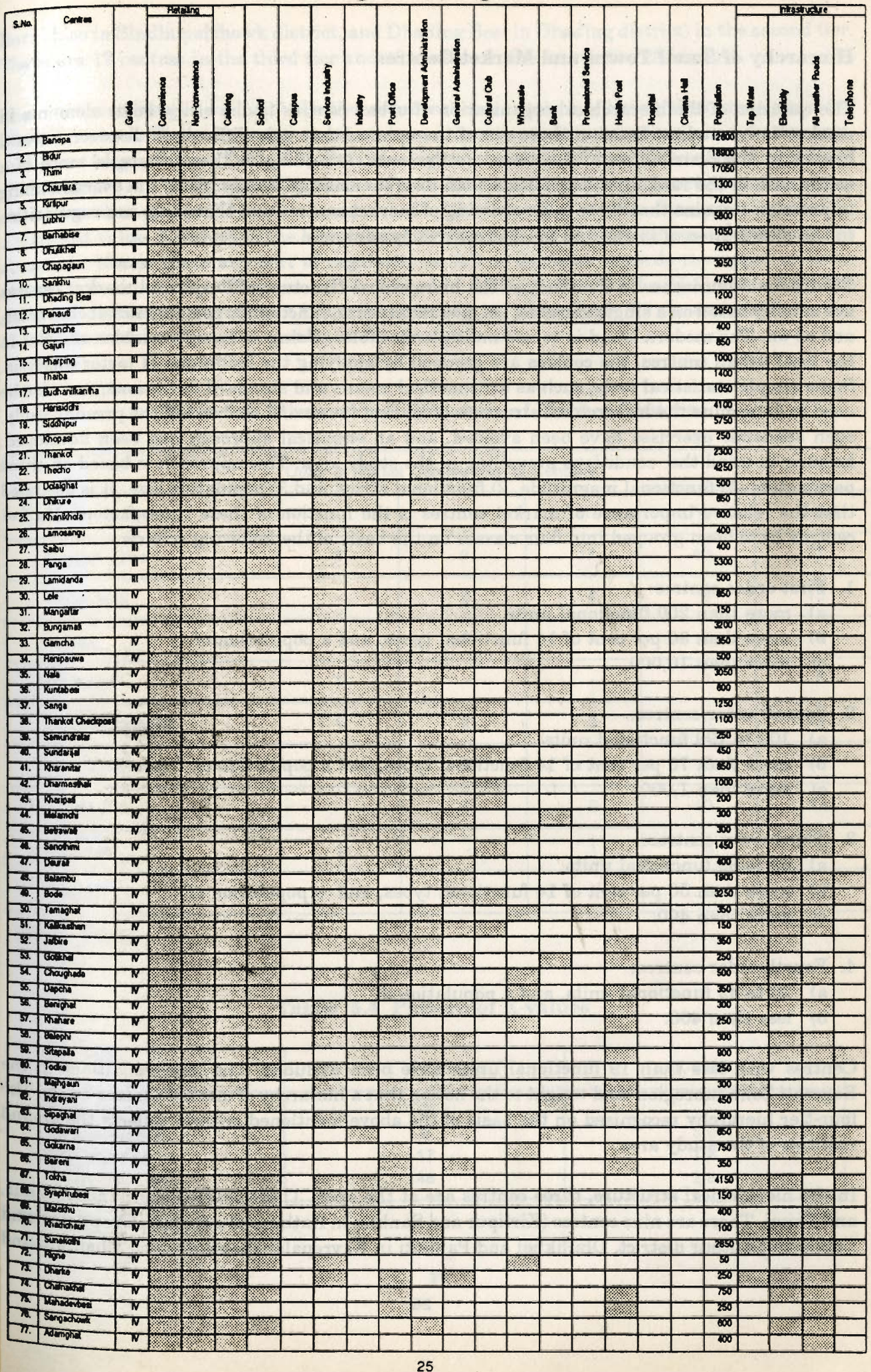
Source: Survey

Two principles are distinctly involved in determination of the locational pattern of marke centres in the study area -1) the transportation principle and 2) the market principle. Th relative importance of the effect of these two principles is reflected in the locational arrangemen of the market centres. The market factor is dominant in areas where local trade is importan The route factor is dominant in areas where long-distance traffic has played a more importan role in the development of market centres. The fundamental spatial difference between th effects of these two factors is that the former produces an areal locational arrangement and th latter a linear pattern. The effect of the market factor can be observed in the Kathmandu Valle and the western part of the Nuwakot district (Figure 4). It is observable, to a lesser extent, i the Banepa area as well. These are the localities where the rich, local agricultural resource bas has greatly contributed to the development of local trade, which, in turn, has given rise to spatially regular distribution of market centres.

The local market centres, in general, are markedly located along the traditional highways (trails and long distance roads. The locational pattern is markedly linear rather than areal. About 8 per cent of the local market centres exhibit a linear pattern and only 20 per cent exhibit an area pattern. The repetition of the original spatial pattern has occurred in connection with th development of new market centres along the new motorable highways, although most of thes centres are no longer dependant on long-distance trade.

The distribution pattern of the local market centres indicates that they are highly clustere There is excessive concentration in a few favoured localities, without any tendency to dispersio in most parts of the study area. When the pattern is observed at the district level, th Kathmandu Valley appears to have a distribution tendency to dispersion. The absence regularity or dispersion in the distribution pattern of the local market centres is attributable t the negative effects of landform, uneven distribution of population and resources, and th historical processes of urban growth.

Figure 4: Scalogram



S.No.	Centres	Grade	Retailing		Catering	School	Campus	Service Industry	Industry	Post Office	Development Administration	General Administration	Cultural Club	Wholesale	Bank	Professional Service	Health Post	Hospital	Cinema Hall	Population	Infrastructure			
			Convenience	Non-convenience																	Tap Water	Electricity	All-weather Roads	Telephone
1.	Banepa	I																		12800				
2.	Bidur	II																		18900				
3.	Thimi	I																		17050				
4.	Chaurara	II																		1300				
5.	Kirtipur	II																		7400				
6.	Lubhu	II																		3800				
7.	Barhabise	II																		1050				
8.	Dhulikhel	II																		7200				
9.	Chapagaun	II																		3950				
10.	Sankhu	II																		4750				
11.	Dhading Besi	II																		1200				
12.	Panauti	II																		2950				
13.	Dhunche	III																		400				
14.	Gajuri	III																		850				
15.	Pharping	III																		1000				
16.	Thaiba	III																		1400				
17.	Budhanilkantha	III																		1050				
18.	Harisiddhi	III																		4100				
19.	Siddhipur	III																		5750				
20.	Khopasi	III																		250				
21.	Thankot	III																		2300				
22.	Thecho	III																		4250				
23.	Dotaighat	III																		500				
24.	Dhikure	III																		850				
25.	Khanikhola	III																		800				
26.	Lamosangu	III																		400				
27.	Saibu	III																		400				
28.	Panga	III																		5300				
29.	Lamidanda	III																		500				
30.	Lele	IV																		850				
31.	Mangaltar	IV																		150				
32.	Bungamati	IV																		3200				
33.	Gamcha	IV																		350				
34.	Hanspauwa	IV																		500				
35.	Nala	IV																		3050				
36.	Kuntabesi	IV																		600				
37.	Sanga	IV																		1250				
38.	Thankot Checkpost	IV																		1100				
39.	Samundratar	IV																		250				
40.	Sundarijal	IV																		450				
41.	Kharanitar	IV																		850				
42.	Dharmasthali	IV																		1000				
43.	Kharipati	IV																		200				
44.	Melamchi	IV																		300				
45.	Betrawati	IV																		300				
46.	Sanothimi	IV																		1450				
47.	Deurali	IV																		400				
48.	Balambu	IV																		1900				
49.	Bode	IV																		3250				
50.	Tamaghat	IV																		350				
51.	Kalikasthan	IV																		150				
52.	Jaibire	IV																		350				
53.	Gotikhel	IV																		250				
54.	Chougada	IV																		500				
55.	Dapcha	IV																		350				
56.	Benighat	IV																		300				
57.	Khahare	IV																		250				
58.	Balephi	IV																		300				
59.	Sitapaila	IV																		900				
60.	Todke	IV																		250				
61.	Majhgaun	IV																		300				
62.	Indreyani	IV																		450				
63.	Sipaghat	IV																		300				
64.	Godawari	IV																		850				
65.	Gokarna	IV																		750				
66.	Bareni	IV																		350				
67.	Yokha	IV																		4150				
68.	Syaphrubesi	IV																		150				
69.	Maleldhu	IV																		400				
70.	Khadichaur	IV																		100				
71.	Sunakothi	IV																		2850				
72.	Rigne	IV																		50				
73.	Dharke	IV																		250				
74.	Chalnakhel	IV																		750				
75.	Mahadevbesi	IV																		250				
76.	Sangachowk	IV																		600				
77.	Adamghat	IV																		400				

Hierarchy of Small Towns and Market Centres

The question of the hierarchical organisation of urban centres is one of the basic elements in market town studies. Some authors are of the opinion that it is difficult to discover natural breaks in the distribution of functional settlements. According to them, there is more of a continuum in the rank-size distribution than discrete class groupings. Still, the overwhelming impression remains that there is an ordering of market centres and that there are regularities in the distribution of towns and market centres by rank size.

Traditional approaches to the study of the hierarchical structure of towns and market centres are usually based on a single variable, i.e., population size, functional type, functional character and so on. The modern trend is to use multiple variables. Using as many variables as exist in the local urban centres, the centres are grouped by applying the technique of factor analysis. Some simple statistical tools, such as arithmetical means and standard deviations, can also be used to determine the hierarchical structure of market towns and centres. In the present study, such academic exercises have been avoided, and an empirical approach has been developed keeping in mind the conditions prevailing in the study area. This approach is based on three parameters -1) functional magnitude, 2) functional array, and 3) population size. It is assumed that the relative importance of market centres is the function of these three factors. Market centres have been grouped into four classes on the basis of the following criteria.

1. First order centres:
   a) more than 200 functional units,
   b) more than 80 per cent of 14 functional types, and a population of
   c) more than 10,000.

2. Second order centres:
   a) 100 to 199 functional units,
   b) more than 75 per cent of 14 functional types, and a population of
   c) more than 1,000.

3. Third order centres:
   a) 50 to 99 functional units,
   b) more than 50 per cent of 14 functional types, and a population of
   c) more than 400.

4. Fourth order centres:
   a) 20 to 49 functional units, and a population of
   b) less than 400.

Centres with less than 19 functional units have been excluded. The local conditions in the Bagmati Zone subregion lend weight to the notion that a hierarchy of market centres exists. The four-tier hierarchy recognised on the basis of the above-mentioned criteria reflects the ground realities of the study area.

In the hierarchical structure, three centres are at the apex. These centres are Banepa, Bidur and Thimi. There are nine centres (Kirtipur and Sankhu in Kathmandu district, Chapagaun and Lubhu in Lalitpur district, Dhulikhel and Panauti in Kavrepalanchowk district, Chautara and

Barahbise in Sindhupalchowk district, and Dhading Besi in Dhading district) in the second tier. There are 17 centres in the third tier and 48 centres in the fourth tier (Annex A).

The pattern converges well with the theoretical scheme in terms of the vertical arrangement of market centres. There are many small centres, a lesser number of medium-sized settlements, and a few large centres (Table 5.3). Relationships of successive orders of the market centres in the hierarchy can be expressed by means of ratio between the number of market centres of two successive class groups. This ratio is expressed by the letter K, a standard statistical symbol for a constant value. K-values in the hierarchical structure do not remain the same throughout the structure. Nor is there any sort of regularity in fall or decrease towards the upper or lower strata of the hierarchy. They are rather irregular, falling between 1.8 and 3 (Table 5.4). The different levels of market centres follow the order of 3:19, 17:48. Table 5.3 shows the distribution of different orders of market centres at the district level.

Table 5.3: Hierarchical Structure of Market Centres

	Order of Market Centres (No. of Centres)				
Unit	I	II	III	IV	Total
Bagmati Zone	3	9	17	48	77
Kathmandu	-	2	4	9	15
Lalitpur	-	2	5	5	12
Bhaktapur	1	-	-	4	5
Kavrepalanchowk	1	2	3	6	12
Sindhupalchowk	-	2	-	7	9
Dhading	-	1	2	10	13
Nuwakot	1	-	1	6	8
Rasuwa	-	-	1	2	3

Source: Survey

Table: 5.4 Pattern of K-values

Order	No. of Centres	K-value
First order I	3	
Second order II	9	3.0
Third order III	17	1.8
Fourth order IV	48	2.8

Source: Survey

Out of the three centres of the first order, Banepa and Bidur are municipal towns, and Thim has not yet been incorporated. All these three centres qualify for the higher level class in term of population, functional magnitude, and functional array. Banepa has all 14 functional type with all sub-categories, while Bidur and Thimi lack one functional type each, i.e., a cinema hall All of them can be designated as market towns.

All of the second order market centres have 13 functional types except Panauti, which lacks tw functional types - a cinema hall and health services. Although functionally important, thre centres of this order, e.g., Dhading Besi, Barahbise, and Chautara have a relatively smal population size (Figure 4).

In the third order, one obvious irregular feature can be noted in some centres with regard t population size. The population sizes of centres such as Thecho, Sidhipur, and Sunakothi ar larger than those of some important upper class (II) centres such as Barahbise, Dhading Besi and Chautara. Dhunche has a lower population size than several fourth order centres.

Some irregularities also exist in the fourth order. Some centres, e.g., Nala and Bode, are mor populous than Barahbise (II). Lele, a small centre located in Lalitpur district, has as many a 13 functional types, comparing well with most of the upper level centres in terms of functiona array. Some centres, such as Malekhu and Shipaghat, have a larger functional magnitude tha some of the third order centres.

Despite some irregular features, as noted above, the hierarchical structure of the local marke centres conforms well to the local conditions.

Population Size of Small Towns and Market Centres

Generally, it is common practice to determine the relative importance of urban centres in term of population size. It is very often considered as a measure for ordering urban centres. In th case of the development of rank-size ordering of urban centres, differences in populatio magnitude serve to distinguish different orders or levels in a rank-size hierarchy. Very often size-class groups are created to study the relative importance of market centres in terms o population. Following this practice, four size classes have been developed for the presen analysis. It is clear from Table 5.5 that the number of small centres exceeds the number o medium-sized centres, which, in turn, outnumber the large centres. It indicates that the numbe of market centres is successively larger as size classes become progressively less. At the apex there are three centres that have a population of more than 10,000 (Figure 5).

Table 5.5: Population Size Classes of Small Towns and Market Centres

Size Classes	Number of Centres	Ratio
More than 10,000	3	
5,000 to 9,999	5	1.7
1,000 to 4,999	22	4.4
Less than 1,000	47	2.1

Source: Survey

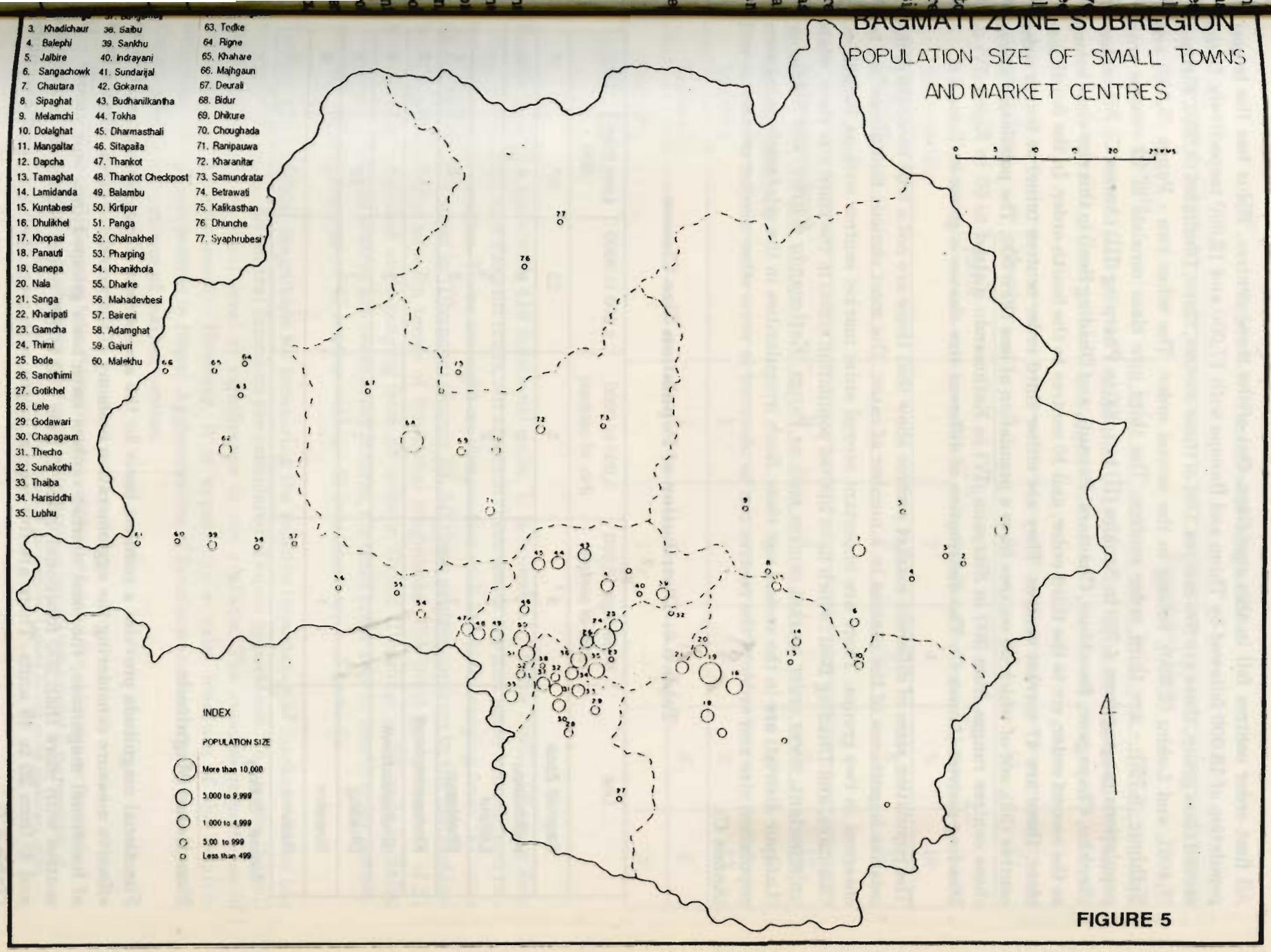

BAGMATI ZONE SUBREGION
POPULATION SIZE OF SMALL TOWNS
AND MARKET CENTRES
3. Khadichaur
4. Balephi
5. Jalbire
6. Sangachowk
7. Chautara
8. Sipaghat
9. Melamchi
10. Dolalghat
11. Mangaltar
12. Dapcha
13. Tamaghat
14. Lamidanda
15. Kuntabesi
16. Dhulikhel
17. Khopasi
18. Panauti
19. Banepa
20. Nala
21. Sanga
22. Kharipati
23. Gamcha
24. Thimi
25. Bode
26. Sanothimi
27. Gotikhel
28. Lele
29. Godawari
30. Chapagaun
31. Thecho
32. Sunakothi
33. Thaiba
34. Harisiddhi
35. Lubhu
36. Saibu
39. Sankhu
40. Indrayani
41. Sundarijal
42. Gokarna
43. Budhanilkantha
44. Tokha
45. Dharmasthali
46. Sitapaila
47. Thankot
48. Thankot Checkpost
49. Balambu
50. Kirtipur
51. Panga
52. Chalnakhel
53. Pharping
54. Khanikhola
55. Dharke
56. Mahadevbesi
57. Baireni
58. Adamghat
59. Gajuri
60. Malekhu
63. Todke
64. Rigne
65. Khahare
66. Majhgaun
67. Deurali
68. Bidur
69. Dhikure
70. Chougada
71. Ranipauwa
72. Kharanitar
73. Samundratar
74. Betrawati
75. Kalikasthan
76. Dhunche
77. Syaphrubesi
INDEX
POPULATION SIZE
More than 10,000
5,000 to 9,999
1,000 to 4,999
500 to 999
Less than 499

FIGURE 5

All first order centres fall in this size class. Out of the three centres, Bidur has the larges population of 18,000 followed by Thimi and Banepa with 17,000 and 12,600 respectively. In th second class group, there are five centres. Out of these centres, three, Dhulikhel (9,600), Kirtipu (7,400), and Lubhu (5,800), belong to the second order. The other two - Panga (5,300) an Sidhipur (5,750) - are third order centres. The third size class consists of 22 centres wit populations ranging from 4,700 in Sankhu (II) to 1,000 in Pharping (III) (Annex C). Six centre (Sankhu, Chapagaun, Barahbise, Chautara, Panauti, and Dhading Besi) in this size class belon to the second order, six to the third order, and 10 centres to the fourth order. In the fourth siz class, there are 47 market centres. They are either third order centres (nine) or fourth orde centres (38), out of which 30 centres have a population of less than 500. The population size o these centres ranges from 900 in Sitapaila (IV) in Kathmandu district to 50 in Rigne (IV) i Dhading district (Annex C). The distribution of different size classes is given in Table 5.6.

The population sizes of different market centres show that these are not a true measure of th relative importance of the centres in a number of cases. The most obvious limitations can b observed in two groups. There are important second order market centres such as Barahbise Chautara, and Dhading Besi (which have limited population sizes) in the third size class, whil unimportant, lower order market centres such as Panga (Kathmandu district) and Sindhipu (Lalitpur district) are in the second size class. Such irregularities in the relationships betwee population size and order of the centres can be observed in some other market centres as wel (Annex C).

Table 5.6: Distribution of Population Size Classes

Unit	More than 10,000 (No. of centres)	5,000 to 0000 (No. of centres)	1,000 to 4999	Less than 1000	Total
Bagmati Zone	3	5	22	47	77
Kathmandu	-	2	9	4	15
Lalitpur	-	2	5	5	12
Bhaktapur	1	-	2	2	5
Kavrepalanchowk	1	1	3	7	12
Sindhupalchowk	-	-	2	7	9
Dhading	-	-	1	12	13
Nuwakot	1	-	-	7	8
Rasuwa	-	-	-	3	3

Source: Survey

Functional Magnitude

Functional magnitude provides a common basis for the assessment of market centres. It is a effective measure considering the agglomeration economy of the market centres. On the bas of functional magnitude, the local market centres have been grouped into four classes - 1 centres with more than 200 functional units; 2) from 100 to 199 units; 3) from 50 to 99 unit and 4) from 20 to 49 units. There are five market towns with more than 200 functional unit (Table 5.7).

Table 5.7: Functional Magnitude

Units		Functional Units				
		More than 200 units	100 to 199	50 to 99	20 to 49	Total
Bagmati Zone	Number	5	8	21	43	77
	Ratio	1.6		2.6	2.0	
Kathmandu		-	2	4	9	15
Lalitpur		-	2	5	5	12
Bhaktapur		1	-	-	4	5
Kavrepalanchowk		2	1	5	4	12
Sindhupalchowk		-	2	3	4	9
Dhading		1	-	3	9	13
Nuwakot		1	-	1	6	8
Rasuwa		-	1	-	2	3

Source: Survey

Banepa is at the apex with 418 functional units. It is followed by Bidur (360)[1], Dhading Besi (327), Thimi (275), and Panauti (221), out of which three towns are first order centres, and two are second order centres. There are eight market centres with functions ranging from 187 units (Barahbise) to 117 units in (Dhunche) (Annex B). All these centres conform to the hierarchical level, except for Dhunche, in terms of functional magnitude. The third group consists of 21 centres with functional units ranging from 88 units in Gajuri (Dhading) to 56 units in Saibu (Lalitpur). All these centres are lower order centres, six third order and 16 fourth order centres. At the bottom is a group of 43 centres with 20-49 functional units (Figure 6).

The use of functional magnitude for measuring the relative importance of market centres has certain limitations. All central functions are considered of equal importance. To assume that all functions are of an equal level of significance is not realistic. The relative importance of functions varies considerably. However, it is apparently a valid measure of the relative importance of market centres in Nepal. Agglomeration of functions increases progressively with the increasing importance of market centres.

---

[1] Functional units located at Batar, Pipaltar, Devighat, and Nuwakot have not been included in the functional magnitude of Bidur. Similarly, the units located in Shrikhandapur have not been included in the magnitude of Dhulikhel. These centres now fall in the municipal areas of these towns. Centres falling in the municipal areas are, however, not treated as individual market centres.

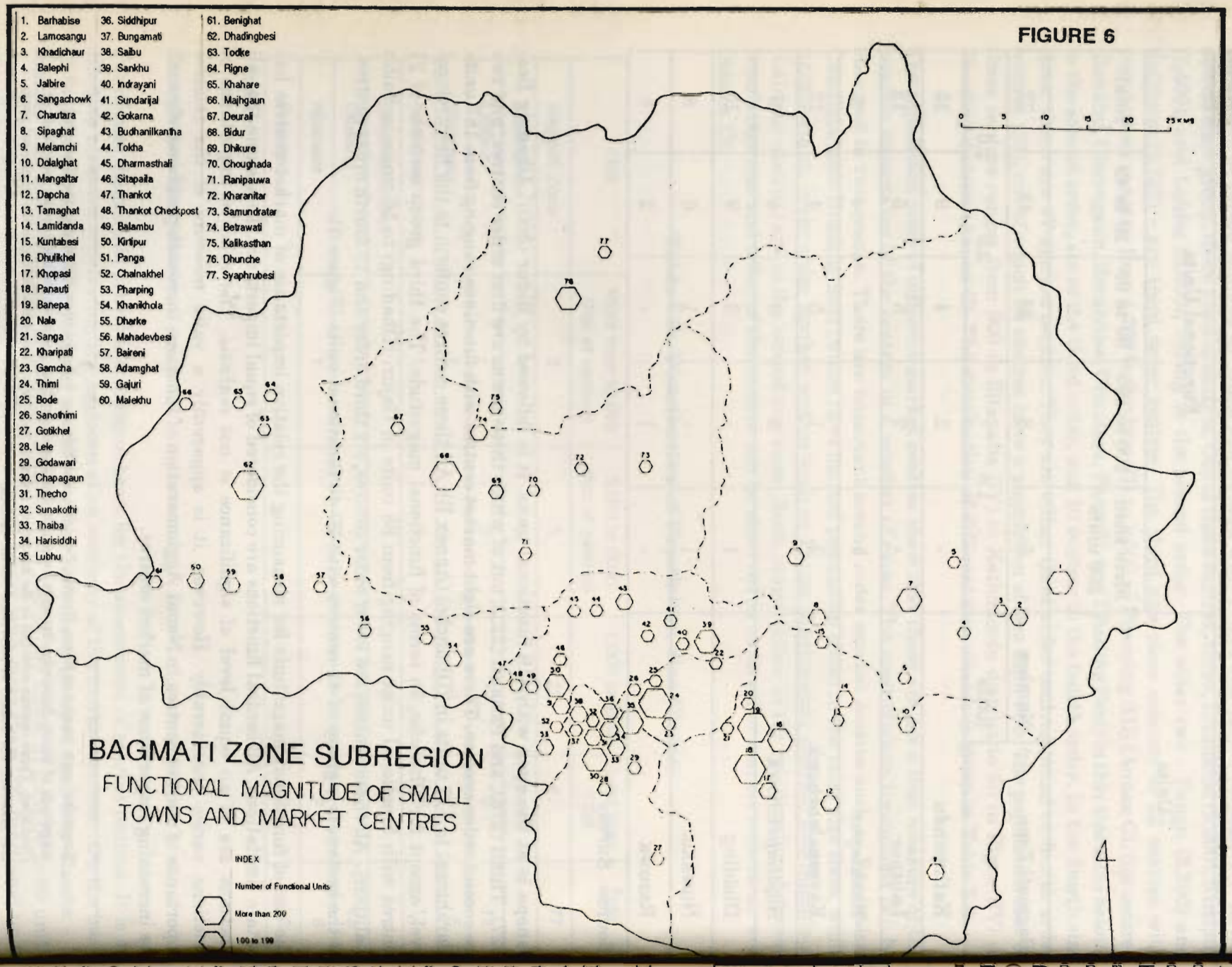


FIGURE 6
1. Barhabise
2. Lamosangu
3. Khadichaur
4. Balephi
5. Jalbire
6. Sangachowk
7. Chautara
8. Sipaghat
9. Melamchi
10. Dolalghat
11. Mangaltar
12. Dapcha
13. Tamaghat
14. Lamidanda
15. Kuntabesi
16. Dhulikhel
17. Khopasi
18. Panauti
19. Banepa
20. Nala
21. Sanga
22. Kharipati
23. Gamcha
24. Thimi
25. Bode
26. Sanothimi
27. Gotikhel
28. Lele
29. Godawari
30. Chapagaun
31. Thecho
32. Sunakothi
33. Thaiba
34. Harisiddhi
35. Lubhu
36. Siddhipur
37. Bungamati
38. Saibu
39. Sankhu
40. Indrayani
41. Sundarijal
42. Gokarna
43. Budhanilkantha
44. Tokha
45. Dharmasthali
46. Sitapaila
47. Thankot
48. Thankot Checkpost
49. Balambu
50. Kirtipur
51. Panga
52. Chalnakhel
53. Pharping
54. Khanikhola
55. Dharke
56. Mahadevbesi
57. Baireni
58. Adamghat
59. Gajuri
60. Malekhu
61. Benighat
62. Dhadingbesi
63. Todke
64. Rigne
65. Khahare
66. Majhgaun
67. Deurali
68. Bidur
69. Dhikure
70. Choughada
71. Ranipauwa
72. Kharanitar
73. Samundratar
74. Betrawati
75. Kalikasthan
76. Dhunche
77. Syaphrubesi
0 5 10 15 20 25 KMS
BAGMATI ZONE SUBREGION
FUNCTIONAL MAGNITUDE OF SMALL TOWNS AND MARKET CENTRES
INDEX
Number of Functional Units
More than 200
100 to 199

Functional Array

The relative importance of market centres may be determined by assessing the number of types of central functions and the degree to which they tend to be associated in each place. Table 5.8 clearly shows that the types of function increase with ascending order of market centres. All higher order market towns (I and II), apart from Panauti, have more than 12 functional types, and most of them accommodate different route types as well (Annex F). Out of the town order centres (III and IV), 27 centres have less than eight functional types, and 20 other centres have only eight or nine types. Locational variations are not distinctly reflected in the range of functional types in the market centres. It is more related to the order of the market centres (Figure 7). Among the lower order centres, the functional types are relatively limited in the highway catering centres, e.g., Lamidanda, Adamghat, Dharke, and Mahadev Besi and in the newly developed centres, e.g., Rigne (Dhading) and Sangachowk (Sindhupalchowk).

Table 5.8: Functional Array

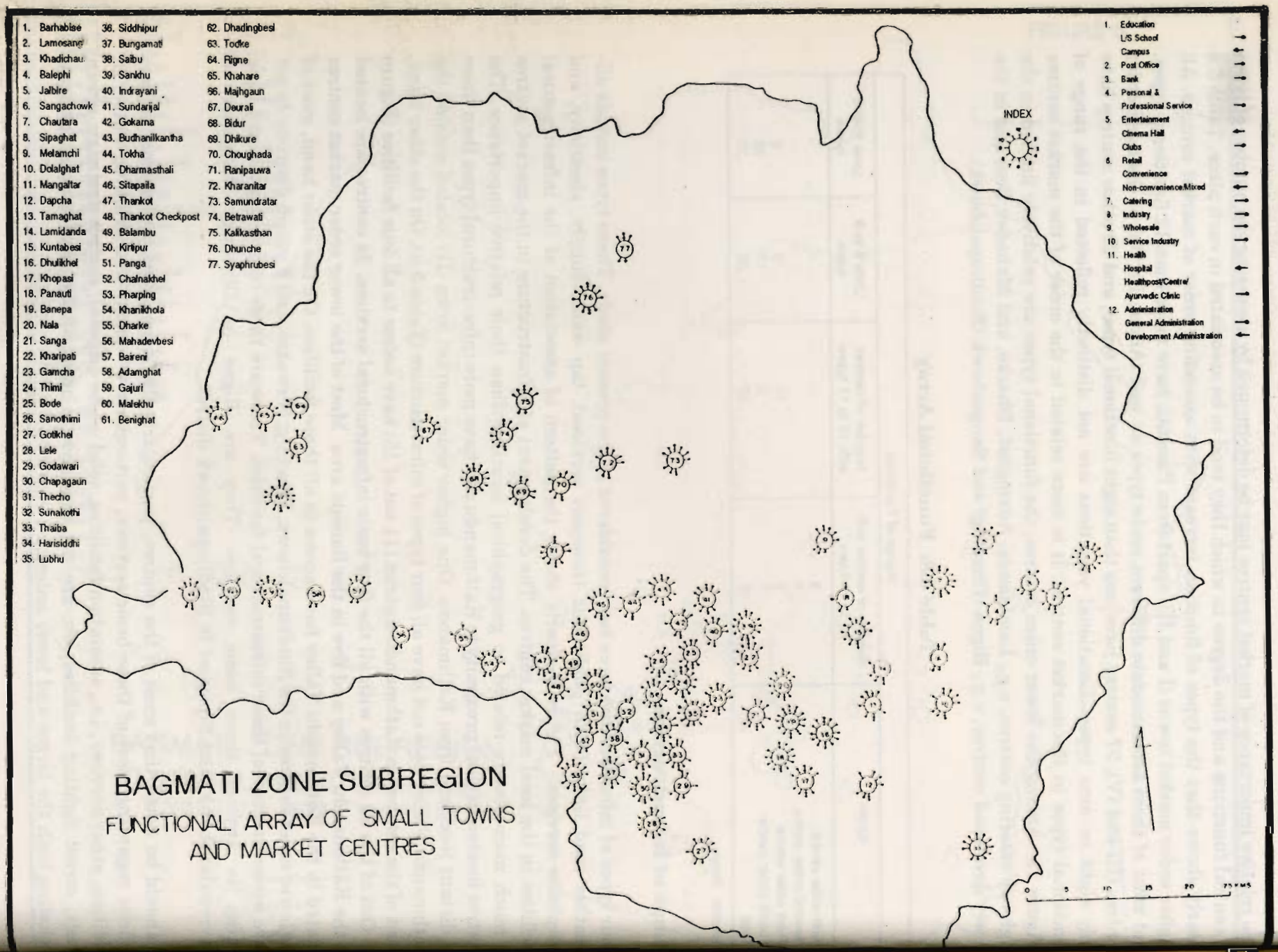
Order	Range of Functions			
	Number of centres with 12 to 14 types	Number of centres with 10 to 11 types	Units 8 to 9 types	Less than 8 types
First order centre	3	-	-	-
Second order centre	9	-	-	-
Third order centre	2	10	3	2
Fourth order centre	1	5	17	25
Total	15	15	20	27

Source: Survey

Range of Infrastructure

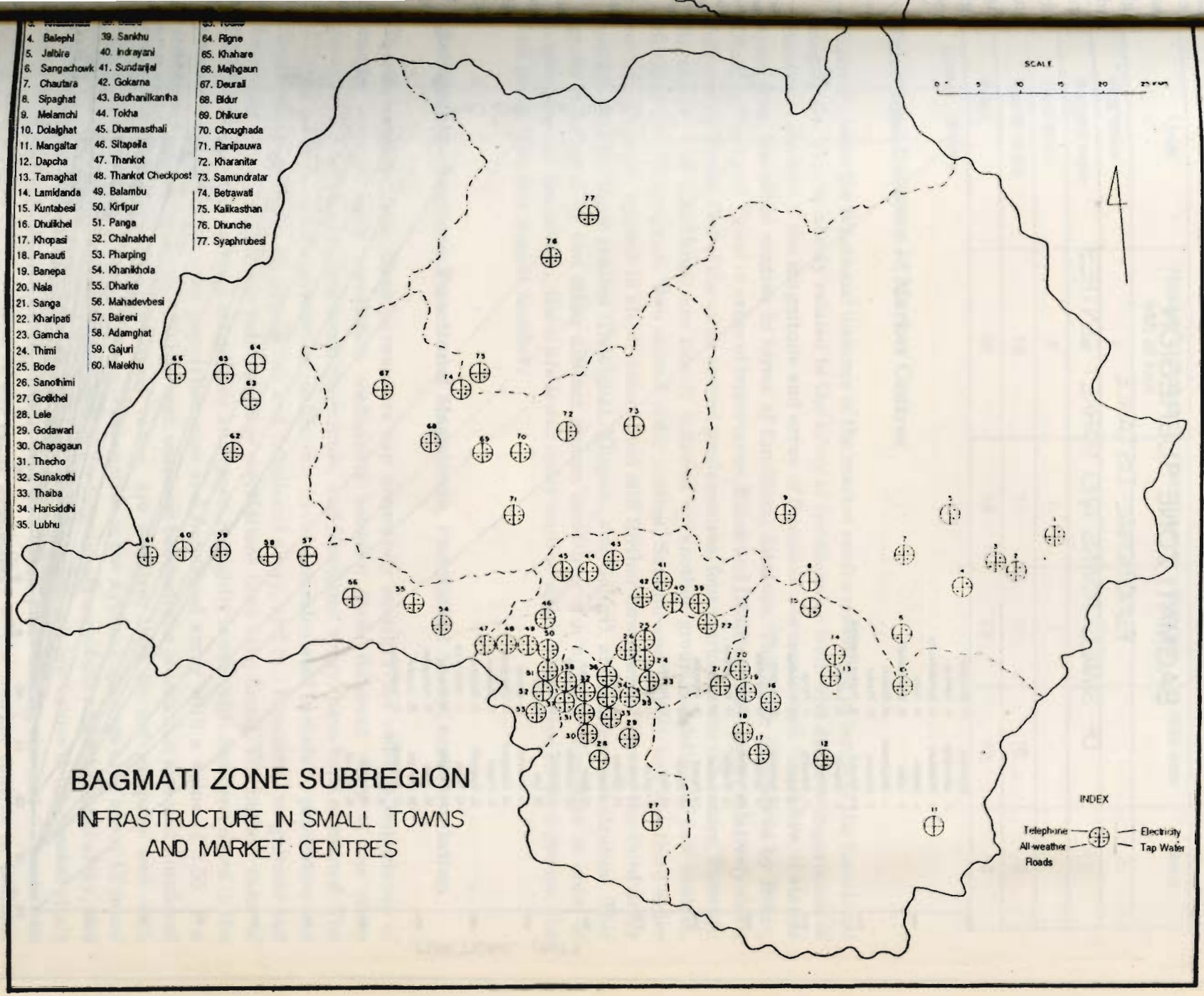
Four types of infrastructure have been considered in the present study. These types include all-weather road links (with public bus transport services), tap water supply, electricity, and telephone services. Figure 8 clearly shows the pattern of association of the infrastructural facilities in the local market centres. The development of infrastructure in the market centres is much more closely related to geographical locations than their relative importance. The centres located in close proximity to Kathmandu city have more infrastructural types than those at distant locations from Kathmandu. One higher order market town (II) located outside the Kathmandu Valley does not have all four types of infrastructure (Table 5.9). On the other hand, most of the centres in Kathmandu district (11 out of 15) have access to all four facilities (Figure 9). Out of the 32 centres with all the four basic infrastructural services, 24 centres are located in the Kathmandu Valley and five in the Banepa area. Most of the lower order market centres located in the Kathmandu Valley have access to all these facilities. On the other hand, most of the lower order centres in the Sindhupalchowk, Dhading, Nuwakot, and Rasuwa districts do not have access to most of these infrastructural facilities. There are three centres that do not have access to any of these basic services. They are Rigne in Dhading, Mangaltar in Kavrepalanchowk, and Sipaghat in Sindhupalchowk district.

It should be noted that most of the centres, particularly the larger ones, suffer from serious deficits regarding most of these basic services, particularly telephone and drinking water. In addition, other services, i.e., sanitation facilities, solid waste disposal, surface drainage, urban roads, street lighting facilities, etc are not available in most of the local market centres, including both the larger and lower orders.



BAGMATI ZONE SUBREGION

FUNCTIONAL ARRAY OF SMALL TOWNS AND MARKET CENTRES



BAGMATI ZONE SUBREGION

INFRASTRUCTURE IN SMALL TOWNS AND MARKET CENTRES

FIGURE 9

BAGMATI ZONE SUBREGION

FUNCTIONAL DISTANCE OF SMALL TOWNS AND MARKET CENTRES

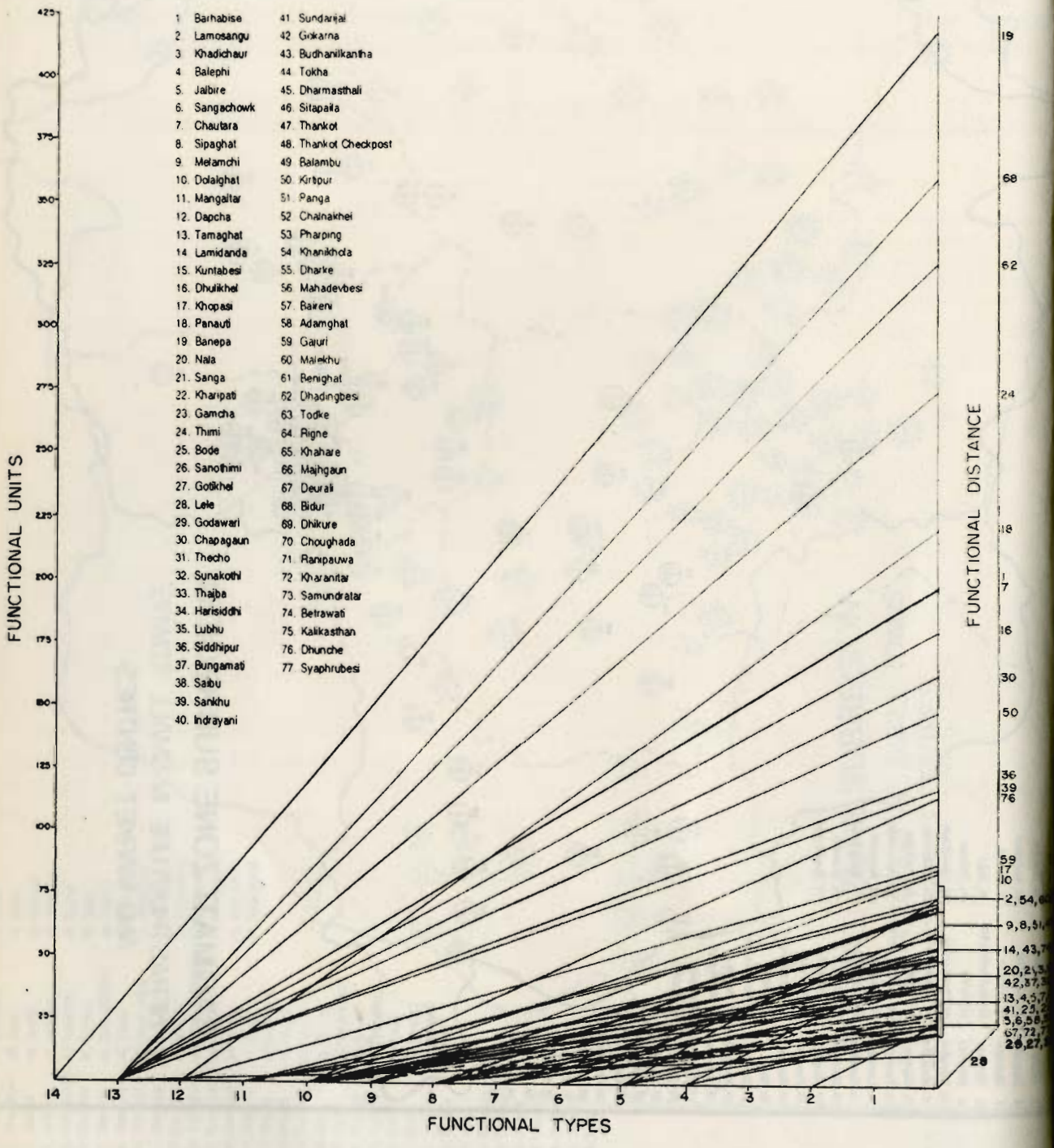


Table 5.9: Range of Infrastructure (Telephone, All-weather Road, Tap Water, Electricity)

Order	Number of centres with all four	With three	With two	With one	None
First order	3	-	-	-	-
Second order	8	2	-	-	-
Third order	8	7	1	-	-
Fourth order	13	11	12	10	3
Total	32	18	13	10	3

Source: Survey

Functional Distance of Market Centres

Figure 9 shows the functional distance of the market centre measured in terms of the functional magnitude. This is clearly related to the array of functions as well. The distinct importance of Banepa is obvious if the magnitude and array of functions are considered. Therefore, it stands apart from the other centres in terms of functional distance. This town is followed by Bidur, Dhading Besi, and Thimi in order of importance. Bidur and Dhading Besi appear relatively close, followed by Thimi. Out of the other second grade centres, four market towns (Chautara, Panauti, Barahbise, and Dhulikhel) are closely followed by another group consisting of two centres, Kirtipur and Chapagaun. Two second order centres, Sankhu and Lubhu, and one third order centre, Dhunche, appear in closer association still further downwards. Among the third order market centres, three centres (Dolalghat, Khopasi, and Gajuri), are in the upper stratum. This group is followed by two other distinct groups consisting of a number of centres in order of importance. At the bottom, there are lower order centres which form three distinct groups, the last group with the largest number.

Relationship between Functional Magnitude, Functional Array, and Population

To see whether these three parameters can accurately measure the relative importance of market centres, rank correlation coefficients between three different pairs of the three parameters (population, functional magnitude, and functional array) have been computed. The different pairs for which correlation coefficients have been calculated include (i) population and functional magnitude, (ii) population and functional array, and (iii) functional magnitude and functional array. In all these pairs, positive correlations have been found. The highest value of 0.59 has been found between magnitude and types. A slightly lower value has been noted in the positive correlation between population size and functional array with a value of 0.55. The positive correlation value of 0.50 has been observed between the population size and functional magnitude. Though the correlation values are positive, they do not compare well with correlation values computed for the market centres in the Arniko Rajmarga area about 12 years' back. The values in the latter case were 0.90 for functional magnitude and functional array, and 0.80 for functional magnitude and population size. The relatively low values in the present study could be partly due to new developments that had taken place during the last 12 years and partly due to the negative effect of the large populations of the market centres in Lalitpur district.

Locational and Distribution Patterns of Market Centres

There are three basic factors which determine the locational pattern of market centres - (market, (ii) transportation, and (iii) administration. Locally, the route factor determines th location of the market centres. The effect of this factor is that the locational pattern is lines rather than spatial, due to the effect of this factor. This is distinctly discernible in most par of the Bagmati Zone. Historically, the effect of the route factor was dominant in the areas whe long-distance traffic played a significant role. As a result, most of the historical market centr were located either along the traditional highways (trails) or at the convergence points of suc highways. The repetition of the original spatial pattern has occurred in connection with th development of new highways, although such centres are no longer dependant on long-distan trade. The main factor at work in this respect is economic. All the nodal points that ha developed along new highways are break-of-bulk points. The situation is not favourable for th growth of market centres away from the roads. This situation will continue to exist until th development of a network of adequate feeder roads.

The effect of the route factor is particularly discernible outside the Kathmandu Valley. Out the 45 market centres located outside the Kathmandu Valley, 41 are located along the maj routes, i.e., 23 on the highway roads, 12 on the feeder roads, and six on the highway trails. these areas, the locational arrangement is distinctly linear.

The location of market centres is not evenly spaced in all cases. In the densely populat Kathmandu Valley and the Banepa area with their rich resource bases, the market centres a closely spaced. This creates a distinct areal pattern in these places. Market centres in oth parts have a distinct linear pattern. This is particularly seen in the central part of the Bagma Zone extending from east to west. This part, with highways, dense population, and a relative rich agricultural resource base, is associated with market centres with a distinct linear patter On the other hand, in the northern and southern parts of the Bagmati Zone, either mark centres do not exist or they are very widely spaced as a result of difficult terrain, spar population, and poor resource base.

In some cases, the locational arrangement of the market centres could be explained wi reference to historical factors only. It is difficult to explain the location of a number of importa centres in the Lalitpur district and the Banepa area within the context of established concept frameworks as those centres are concentrated in close proximity to each other. These locatio arrangements can be explained only in totality, and neither in terms of distribution population, resources, and purchasing power of the people nor in terms of the notion of 'ra of a good' and 'threshold sales level'. One has to examine historical factors and lo circumstances to explain the pattern.

The locational arrangement of the market centres clearly shows that the distribution patt is distinctly concentrated rather than dispersed. When the analysis is made at the district le the pattern shows a distinct dispersion in the Kathmandu Valley, whereas, in other cases, i clustered. The absence of regularity or randomness in the distribution pattern of the lo market centres outside of the Kathmandu Valley is attributable to the negative effects of terra uneven distribution of population and resources, and historical processes of the growth of ma centres.

FUNCTIONAL BASES OF SMALL TOWNS AND MARKET CENTRES

Agricultural Support Base of Small Towns and Market Centres

Although there are no up-to-date data on the functional base of all the market centres in the study area, some general observations can be made with a fair degree of accuracy on the basis of available information and impressions gained from field visits.

Agriculture is still the main functional base of most of the 77 market centres in the study area. However, there is a perceptible change, i.e., an increasing proportion of tertiary and manufacturing activities.

The data presented in Table 6.1 were collected in 1977. It can be observed that market centres in the Arniko Rajmarga area were mainly engaged in agricultural activities. This is true of the old market centres and centres with large population sizes in the study area. There has been no drastic change, at least in the market centres outside the Kathmandu Valley.

It can be concluded from the table that most of the market centres depended on agriculture for providing employment. Only Barahbise, Lamosangu, Dolalghat, Lamidanda, and Mangaltar had less people employed in agriculture than in tertiary and manufacturing combined. Among these market centres, the old nodal settlement of Barahbise expanded its market and acquired new functions with the opening of the Arniko highway. Lamidanda, Lamosangu, and the present Dolalghat market are relatively new market centres located along the Arniko highway. In Mangaltar, even though it is far away from any road linkages, 52 per cent depended on tertiary activities.

Even in larger centres such as Banepa and Thimi, a higher percentage of people were employed in agriculture.

However, certain changes have taken place since 1977. There is a definite trend towards increasing dependence on tertiary and manufacturing activities. In 1983, a sample survey of the occupational structure of market centres in Kavre district was conducted by the Geography Instruction Committee (presently the Central Department of Geography). The data basically conformed to the pattern of 1977 with some changes. Agriculture no longer remained the main base of Dhulikhel as the tertiary sector had taken over. In Lamidanda, none specified agriculture as their primary occupation.

Recently, a carpet factory has been constructed in Banepa with an investment of 30 million rupees. The occupational structure data on Banepa for 1989 also showed a marked change compared to 1977 (Tables 6.1 and 6.3). The agricultural base (55%) declined to 41 per cent and the manufacturing base increased to 24.4 per cent. At present, Melamchi is probably less dependant on agriculture after it became the final destination for bus services from Banepa. Similarly, many market centres within the valley show increasing dependance on tertiary and industrial sectors compared to the past.

Table 6.1: Occupational Structure of Market Centres in the Arniko Rajmarga 197

(in percentage

Market centres	Agriculture	Tertiary	Manufacturing
Banepa	55	34	11
Thimi	60	24	16
Dhulikhel	63	36	1
Barahbise	48	52	-
Sankhu	64	34	2
Lamosangu	39	60	1
Chautara	77	22	1
Panauti	73	23	4
Khopasi	69	31	-
Dolalghat	45	55	-
Jalbire	62	36	2
Bode	64	24	12
Sanga	86	13	1
Lamidanda	30	70	-
Balephi	78	22	-
Nala	95	3	2
Dapcha	71	27	2
Mangaltar	48	52	-
Kharipati	85	15	-
Melamchi	85	15	-
Gamcha	84	16	-

Source: Shrestha 1977

Table 6.2: Occupational Structure of Small Urban Centres in Kavre 1983

(in percentag

	Agriculture	Tertiary	Industry
Dapcha	69.2	30.8	-
Dhulikhel	41.9	58.1	-
Dolalghat	40.0	60.0	-
Lamidanda	-	100.0	-
Khopasi	73.3	26.7	-
Nala	81.8	18.2	-
Panauti	76.3	21.1	2.6
Sanga	83.3	16.7	-
Sankhu	92.9	7.1	-
Srikhandapur	81.8	18.2	-

Source: Geography Instruction Committee 1984

Table 6.3: Banepa Occupational Structure 1989

(in percentages)

Agriculture	41
Business	18.2
Services	13.00 - Tertiary 34.6
Labour	3.4
Industry	24.4
Total	100.00

Source: Karki 1989

Table 6.4: Kirtipur Occupational Structure

(in percentages)

	1967/47	1974/35.57	1980/151	1989/8.79
1. Agriculture				
2. Manufacturing	38	36.52	21	30.79
3. Tertiary	15	27.91	64	60.42
Total	100	100	100	100.00

Source: Shrestha 1991

Tertiary Activities

In most of the 77 market centres under study, tertiary activities form the most important base. There has been noticeable expansion of tertiary activities compared to manufacturing in the recent past. For instance, in 1967, 15 per cent of the people were employed in the tertiary sector in Kirtipur (Table 6.4). In 1989, the figure increased to 60.4 per cent. In fact, changes in other centres may not be of the same magnitude as those in Kirtipur, but in most market centres, the tertiary sector is expanding. Even in 1983, Dhulikhel's tertiary base was greater compared to agriculture (Table 6.2). Since 1983, tourist-related activities have increased. The commercial activities in Dhading Besi have also increased significantly.

Two new market centres mainly based on tertiary activities, have emerged since the Central Services' Maps were published. They are Tamaghat in Kavre and Rigne in Dhading, Barahbise, Lamosangu, Dolalghat, Balephi, Khadichour, and Lamidanda along the Arniko highway which have long been tertiary sector-dominated market centres. Similarly, catering centres along the highway, such as Khanikhola, Thankot Checkpost, Malekhu, Adamghat, and Bairani have remained tertiary sector-dominant centres. Even an old agricultural settlement like Thimi is expanding its tertiary base with the recent construction of a large hospital. Such changes are noticeable in most of the old agricultural settlements of the Kathmandu Valley, e.g., Lubhu, Thecho, Thaiba, and Harishidhi.

Industrial Activities

The industrial base, mainly garment and carpet industries, of most of the market centres in the valley is expanding.

Although the proportion of the industrial sector in the occupational structure of these marke centres is not large, it is markedly on the increase. There has been, however, no significan expansion of the industrial base market centres outside the valley.

Among the larger centres (I), Banepa and Thimi experienced significant changes regardin expansion of their industrial base. In 1977, only 11 per cent were engaged in industrial activitie in Banepa. In 1989, it increased to 24.4 per cent (Tables 6.1 and 6.3). During a field visit t Thimi, it could be observed that Thimi is steadily being converted to an industrial area.

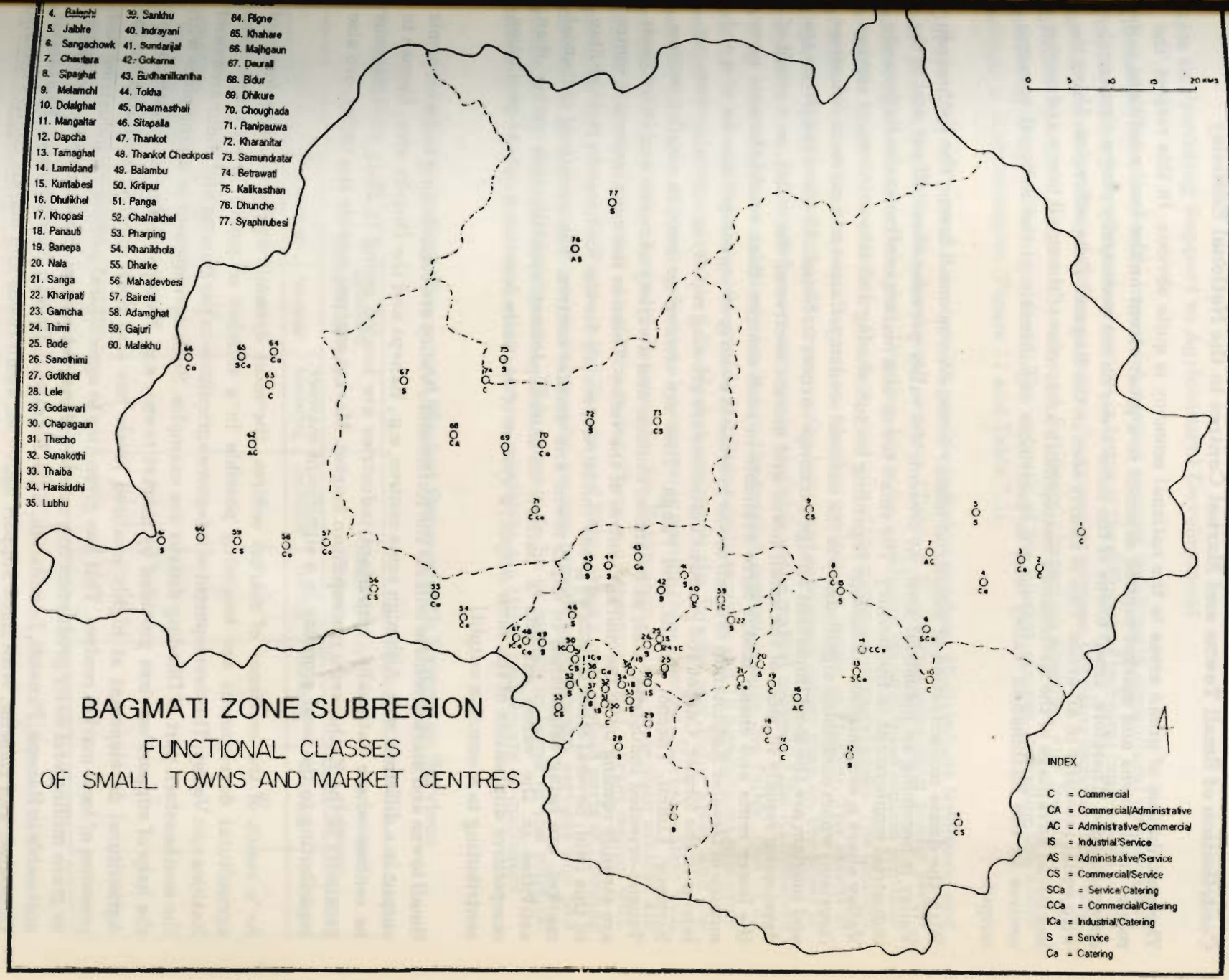
Small market centres, mainly within the Kathmandu Valley, for example, Lubhu, Thaib Thecho, Harishidhi, and Sidhipur have enlarged their industrial base with the introduction carpet, garment, or brick industries. Even Budhanilkantha, a catering centre, has a flourishin carpet industry. However, none of the market centres outside the Kathmandu Valley exhibite a significant and similar expansion of the industrial base. Recently, a Nepali paper-making un employing around twelve people has been established at Chautara. Barahbise can also boast a paper-making establishment. Lamosangu could emerge as an industrial town if the magnesit factory functions in an efficient manner. However, no significant change can be detecte regarding the trend of expansion of the industrial base outside the valley. The facilities and th markets in the valley are relatively well developed considering the absence of incentives and/ subsidies for locating industries outside the Kathmandu Valley. Dharke is an exception, wit the growth of some large industrial establishments in its vicinity.

Re-examination of the Functional Base

The importance of towns and market centres, in terms of central functions, usually cannot estimated on the basis of the occupational structure. Obviously, the relative importance market centres is reflected in the magnitude of the array of central functions. On the basis such an array of functions, the market centres of the study area have been grouped into t following 12 functional classes.

1. Commercial (c) 2. Commercial/Administrative (CA) 3. Administrative/Commercial (AC)
4. Industrial/Commercial (IC) 5. Industrial/Service (CS) 6. Administrative/Services (A5)
7. Commercial/Services (CS) 8. Services/Catering (SC) 9. Commercial/Catering (CCa)
10. Industrial/Catering (ICa) 11. Services (S), and 12. Catering (Ca).

Eleven centres, including one first order centre (Banepa), fall in class C. Bidur, the other fi order market town, appears to be a commercial and administrative centre. Dhulikhel, Dhadi Besi, and Chautara are primarily administrative centres, and they have acquired commer importance only because of the location of the district headquarters. All of these three cent are administrative and commercial (AC) centres. Most of the larger centres in the Kathman Valley are industrial/commercial (IC) or industrial/service-based (IS) or industrial/catering (I centres. The most dominant functional classes in terms of numerical strength are services catering. There are 25 service centres and 14 catering settlements (Annex G). Service cent are relatively dominant in the Kathmandu Valley (as many as 16 out of 25 centres in the st area), while catering centres are markedly highway centres (Figure 10).


4. Balephi
5. Jalbire
6. Sangachowk
7. Chautara
8. Sipaghat
9. Melamchi
10. Dolalghat
11. Mangaltar
12. Dapcha
13. Tamaghat
14. Lamidand
15. Kuntabesi
16. Dhulikhel
17. Khopasi
18. Panauti
19. Banepa
20. Nala
21. Sanga
22. Kharipati
23. Gamcha
24. Thimi
25. Bode
26. Sanothimi
27. Gotikhel
28. Lele
29. Godawari
30. Chapagaun
31. Thecho
32. Sunakothi
33. Thaiba
34. Harisiddhi
35. Lubhu
39. Sankhu
40. Indrayani
41. Sundarijal
42. Gokarna
43. Budhanilkantha
44. Tokha
45. Dharmasthali
46. Sitapaila
47. Thankot
48. Thankot Checkpost
49. Balambu
50. Kirtipur
51. Panga
52. Chalnakhel
53. Pharping
54. Khanikhola
55. Dharke
56. Mahadevbesi
57. Baireni
58. Adamghat
59. Gajuri
60. Malekhu
64. Rigne
65. Khahare
66. Majhgaun
67. Deurali
68. Bidur
69. Dhikure
70. Choughada
71. Ranipauwa
72. Kharanitar
73. Samundratar
74. Betrawati
75. Kalikasthan
76. Dhunche
77. Syaphrubesi
0 5 10 15 20 KMS
BAGMATI ZONE SUBREGION
FUNCTIONAL CLASSES
OF SMALL TOWNS AND MARKET CENTRES
INDEX
C = Commercial
CA = Commercial/Administrative
AC = Administrative/Commercial
IS = Industrial/Service
AS = Administrative/Service
CS = Commercial/Service
SCa = Service/Catering
CCa = Commercial/Catering
ICa = Industrial/Catering
S = Service
Ca = Catering

ROLE OF SMALL TOWNS AND MARKET CENTRES

Contribution of Small Towns and Market Centres to the National Economy

The contribution of urban areas to the national economy is quite obvious. In this respect, th role of small towns and market centres depends to a great extent on the local conditions an circumstances. Therefore, small towns of the same order do not necessarily play a similar rol with equal intensity in all areas. This is clearly seen in the Bagmati Zone subregion. Using th locational advantage of the Kathmandu metropolitan area, most of the small towns and marke centres in the Kathmandu Valley tend to contribute significantly to the national economi output.

With the dense concentration of industrial labour force, even in small towns, the Kathmand Valley is becoming an industrial area. At present, the valley provides about 69 per cent of th industrial employment in the country. The small towns and market centres in the Kathmand Valley share a comparative advantage regarding manufacturing and labour-intensive service (tourism) which contribute significantly to the national economy. Carpet and garment industrie and tourism are the most important foreign exchange earners in Nepal. All these industries ar developing rapidly in most of the small towns and market centres of the valley, as a result o the lower rents and cheap labour force available in such centres. Such establishments mov outside of Greater Kathmandu to small towns in order to avoid growing competition for sites an labour in the former. Carpet and garment industries are growing rapidly in several centres, e.g Kirtipur, Lubhu, Thecho, Thaiba, and Panga. They are coming up even in smaller centres Tourist-oriented industries, such as ceramics, *thanka*, and a variety of curios and other good are steadily coming up in the market centres of the valley. Thimi is the most important centr in this field. Several other consumer goods' industries, mainly for the Kathmandu metropolita market, are being established in small towns and market centres. The growth of industri activities in the valley exhibits a pattern of interdependant specialisation rather tha competitive duplication of the same output, a system of spatially separate points of productio contributing to a common output.

Small towns and market centres outside the Kathmandu Valley are contributing to the economi output in a different way. Although some centres, e.g., Banepa and the Dharke area, happen t be centres where nationally important industries are located owing to their advantageou proximity to the Kathmandu metropolitan market. Market centres, outside the valley, are al contributing to the local economy in a significant manner.

As a result of the existence of market centres, the most dynamic and productive forms agricultural development are becoming possible in a number of places, even outside t Kathmandu Valley. The development of intensive agriculture in the Banepa and Bidur areas a the southeastern part of Dhading district are examples. Such development is taking place wi the help of support services provided by market towns, e.g., Banepa, Bidur, and Kathmand Agricultural development at highly localised levels has also been greatly facilitated by t presence of local market centres. This has given rise to agricultural processing industries su as grain milling and dairy production in a number of market centres. Such growth is marked noticeable in Banepa, Panauti, Lamidanda, Nala, Betrawati, Deorali, Samundratar, Kharanit Dhulikhel, and Dapcha. With these support activities, small towns and market centres are al

ontributing significantly to the local economy. In addition, these centres provide extension ervices to rural areas as well as markets for agricultural products, rural handicrafts, and ottage industries.

Role in Providing Support to Agricultural Development

The market centres provide important support services resulting in agricultural development. They have emerged as important centres in terms of the diffusion of technical innovations in the agricultural sector. They function as centres for extension services, providing technical knowhow, distributing inputs (improved seeds and fertilisers), imparting training, and facilitating the marketing of agricultural products. The network of the market centres providing the above services is fairly extensive (Figure 11 and Table 7.1).

Out of a total of 77 market centres, 38 provide technical services, 45 distribute fertilisers, and four provide public sector marketing services (Table 7.1). Centres providing public sector marketing services are Dolalghat, Dhading, Dhunche, and Bidur. Many of these centres continue to remain important markets for the farm products of the surrounding rural areas. The location of extension services does not depend on whether centres are larger or smaller. The extent of these service provisions depends more on the locational conditions rather than on the order of market centres. Such services are commonly available in the market centres of the Kathmandu Valley, while they are relatively limited in the market centres outside the valley. Out of 32 market centres in the valley, 21 provide fertiliser supply services and 18 agricultural extension services (Figure 11 and Table 7.1). Market centres in the Banepa and Bidur areas and the southeastern part of Dhading district also commonly provide these services. Market centres with extension services are markedly dispersed in the Kathmandu Valley, while such centres are limited to certain localities outside the valley. There is a concentration of market centres with provision for extension services in the Banepa and Bidur areas and in certain parts of Dhading district. In general, small towns and market centres provide good support services and this results in agricultural development. This appears to be so mainly in terms of the physical network. However, in several areas, service provisions are either inadequate or inefficient.

Table 7.1: Small Towns and Market Centres with Extension Services

	Agricultural Extension Services			Cottage Industry Extension			Livestock Extension	
Unit	Technical	Fertiliser	Marketing	Technical	Training	Marketing	Technical	Grazing
Bagmati Zone	38	45	4	4	3	1	10	1
Kathmandu	7	9	-	-	-	-	-	-
Lalitpur	8	10	-	-	-	1	-	-
Bhaktapur	3	2	-	1	-	-	-	-
Kavrepalanchowk	6	6	1	1	-	1	-	-
Sindhupalchowk	2	6	-	1	1	-	3	-
Dhading	4	3	1	1	1	-	-	-
Nuwakot	5	7	1		1	-	-	-
Rasuwa	3	2	1			-	3	1

Source: Field Survey 1991

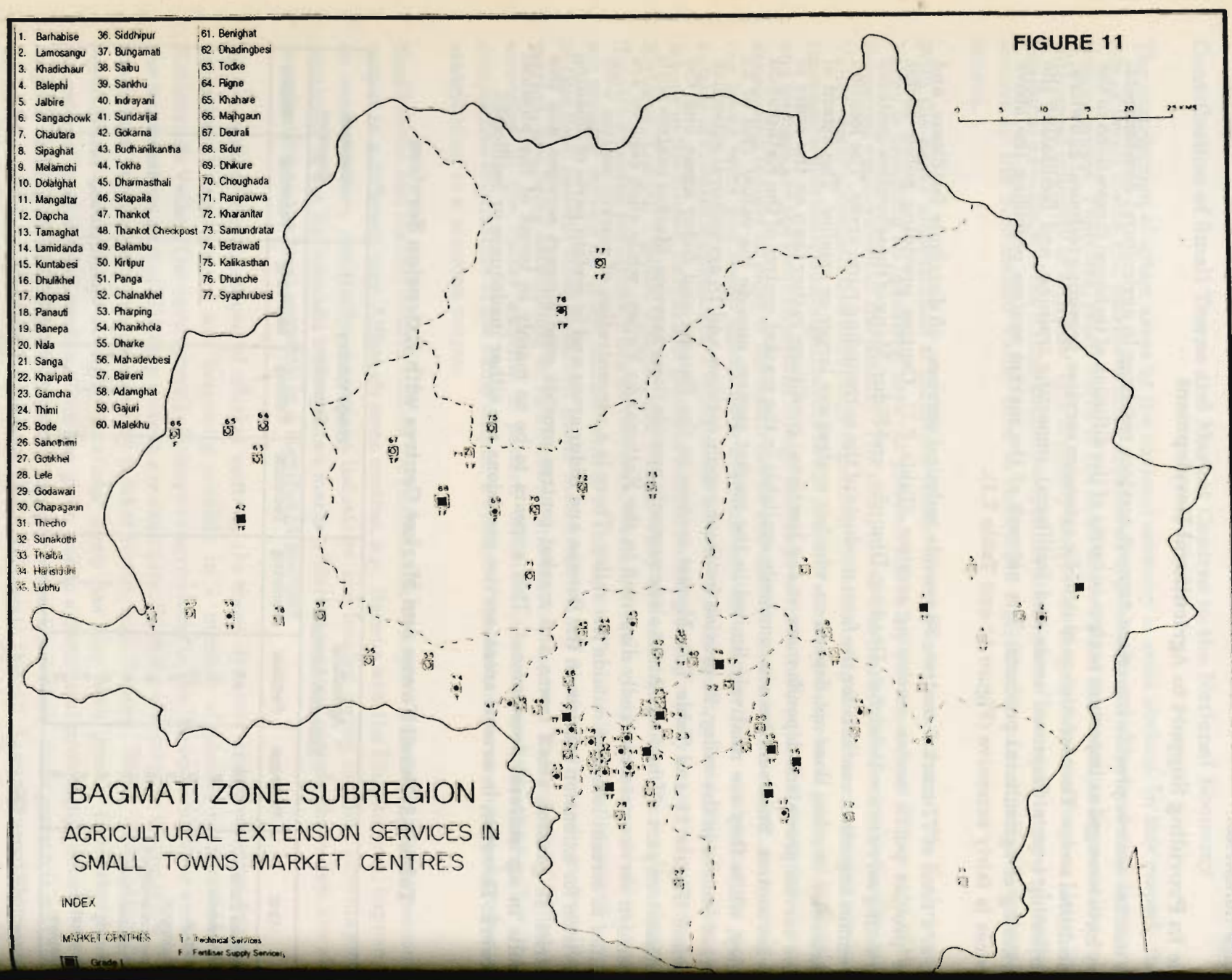


FIGURE 11
1. Barhabise
2. Lamosangu
3. Khadichaur
4. Balephi
5. Jalbire
6. Sangachowk
7. Chautara
8. Sipaghat
9. Melamchi
10. Dolalghat
11. Mangaltar
12. Dapcha
13. Tamaghat
14. Lamidanda
15. Kuntabesi
16. Dhulikhel
17. Khopasi
18. Panauti
19. Banepa
20. Nala
21. Sanga
22. Kharipati
23. Gamcha
24. Thimi
25. Bode
26. Sanothimi
27. Gotkhel
28. Lele
29. Godawari
30. Chapagaun
31. Thecho
32. Sunakothi
33. Thaiba
34. Harisiddhi
35. Lubhu
36. Siddhipur
37. Bungamati
38. Saibu
39. Sankhu
40. Indrayani
41. Sundarijal
42. Gokarna
43. Budhanilkantha
44. Tokha
45. Dharmasthali
46. Sitapaila
47. Thankot
48. Thankot Checkpost
49. Balambu
50. Kirtipur
51. Panga
52. Chalnakhel
53. Pharping
54. Khanikhola
55. Dharke
56. Mahadevbesi
57. Baireni
58. Adamghat
59. Gajuri
60. Malekhu
61. Benighat
62. Dhadingbesi
63. Todke
64. Pigne
65. Khahare
66. Majhgaun
67. Deurali
68. Bidur
69. Dhikure
70. Chougbada
71. Ranipauwa
72. Kharanitar
73. Samundratar
74. Betrawati
75. Kalikasthan
76. Dhunche
77. Syaphrubesi
BAGMATI ZONE SUBREGION
AGRICULTURAL EXTENSION SERVICES IN SMALL TOWNS MARKET CENTRES
INDEX
MARKET CENTRES
T Technical Services
F Fertiliser Supply Services
Grade I

Table 7.2: Market Centres with Schools and Health Services

	Larger Centres Grades I & II			Lower Order Centres Grades III & IV			Smaller Centres as reported by the Suspension Bridge Division		
Unit	School	Health	Both	School	Health	Both	School	Health	Both
Bagmati	1	-	11	20	2	37	185	21	39
Kathmandu	-	-	2	3	-	10	12	-	1
Lalitpur	-	-	2	3	-	7	20	3	1
Bhaktapur	-	-	1	1	-	3	5	1	4
Kavrepalanchowk	1	-	2	3	-	5	52	2	5
Sindhupalchowk	-	-	2	3	-	2	26	6	5
Dhading	-	-	1	3	2	5	31	2	10
Nuwakot	-	-	1	4	-	2	34	2	10
Rasuwa	-	-	-	-	-	3	5	5	3

Source: Field Survey 1991 and Central Service Maps, Suspension Bridge Division 1989

Role in the Development of Off-farm Employment

Small towns and market centres, excluding those in the valley, do not appear to be important sources of off-farm employment. The small towns and market centres in the valley are generating a significant number of jobs, especially in the carpet and garment industries. However, the market centres outside the Kathmandu Valley present a very dismal picture regarding off-farm employment generation. Only larger centres, e.g., Banepa and Bidur, provide off-farm employment to some extent. Banepa, more than Bidur, is rapidly expanding its functional base in tertiary and manufacturing activities, generating more jobs in the process. Thimi, another large centre in the valley, is also rapidly changing its base from the agricultural to the non-agricultural sector with the establishment of industries and a large T.B. Hospital, generating off-farm employment in the process. Dhulikhel is also generating increasing off-farm employment as a tourist centre. The district headquarters, including Dhulikhel, Chautara, and Dhading Besi, have the capacity to generate off-farm employment to a significant degree due to the expansion of administrative functions.

Outside the Kathmandu Valley, most of the functional establishments in the market centres are self-employed enterprises. In several places, agriculture exists as a side activity supplementing the income of local traders. This situation is markedly noticeable in centres such as Panauti, Khopasi, Sanga, Dapcha, Nala, Melamchi, and Samundratar. Job opportunities for rural people in the surrounding areas are extremely limited in such places. Market centres, e.g., Khanikhola, Malekhu, Khadichaur, Ranipauwa, and Lamidanda, which are located at important nodal points, are providing off-farm employment to a certain extent to the rural people.

It can be observed that generation of off-farm employment depends to a great extent on t functional strength of market centres. Larger centres with relatively strong functional bases terms of magnitude and array generate more off-farm employment than the smaller centres w a small functional base. However, with the exception of Banepa, Bidur, and some market cent in the Kathmandu Valley, the local market centres are not important centres for off-fa employment.

Role as Medium of Social Service Delivery

The small towns and market centres are focal points providing services such as hea education, and postal facilities. There is a good network of educational facilities (Table 7 Health service facilities, although not as numerous as educational, have a fairly good covera Only six market centres are without both health and educational facilities. Out of 77 mar centres, 69 centres have educational facilities, and 50 have health facilities. Forty-eight cent have both health and educational facilities. The market centres in the Bagmati subregion h a good network of health and educational facilities, despite the mediocre quality of services addition to 77 market centres, there are other central areas which provide these services. Th are 39 such smaller centres providing health and educational services. There are as many as other central areas with secondary schools (upper/lower). Twenty-one other centres prov health services. The network of these centres is reasonably good, covering most parts of study area. It seems that market centres are an effective medium of social service deliver the Bagmati Zone.

The role of small towns and market centres as focal points of services, including education health services, very often becomes ineffective as a result of inefficiency and the poor quali services provided. These features are particularly noticeable with regard to health service

PATTERN OF INTERACTION

General Nature of Interaction

Interaction among urban settlements, including small towns and market centres, takes place in two ways. First, interaction occurs hypothetically among all the market centres, each centre having functional linkages with all the other urban/market settlements of a region. Second, urban centres have linkages to a varying degree with the surrounding rural areas. The former occurs at the inter-urban level and the latter at the rural-urban level. For inter-urban interaction, there must be complementary demand and supply. Demand and supply include different components such as trade, administration, social activity, technology, etc. The inter-urban interaction pattern in most parts of Nepal, including the Bagmati Zone subregion, is conditioned by trade flow. This can be analysed by observing the sources of trading commodities in market centres. For trade interaction between two market centres, there must be a demand in one centre that is supplied by another. Demand and supply must be complementary. However, complementarity cannot generate interaction between two market centres if there is an intervening opportunity between them. Therefore, the potential for movement of goods from one centre to another exists only when there is no intervening opportunity. The third important condition for trade interaction is transferability as expressed time and money costs. If these costs are very high, the movement of goods will not take place despite the fulfillment of the other two conditions.

Interaction also occurs between market centres and rural areas. Every urban settlement, whether it is a service centre, market centre, town or city, to a varying degree, is a centre for services to surrounding rural areas. The surrounding rural areas rely upon and make increasing use of services and institutions located in the urban settlements. Some of these services are distributed from the urban centres to the population concentrated around them, but many must be sought, involving journeys to and from an urban centre. Rural-urban linkages are a two-way phenomenon. If the surrounding rural areas receive services from the urban centres, the latter are dependant on rural areas for the supply of agricultural crops, dairy products, and a variety of industrial raw materials. A market town, whether expressed in terms of an array of functions or order, is associated with a given population (threshold) which it services and a maximum distance to which goods or services are distributed on a regular basis (range). The extent of rural-urban relationships is markedly conditioned by accessibility. The latter can be measured in terms of physical distance, physical effort, time, and cost factors. Thus, the relationship between the market centres and their surrounding rural areas involves overcoming a number of constraints which can be generalised in the phrase 'friction of space'. It is clear that consumers must travel the distance between the market centre and their place of residence. The delivered price of the commodities increases according to the distance from the place of residence to the market centre, as the consumers have to pay the shop price in addition to transport costs. However, time may be sacrificed to a certain extent in consideration of the monetary gains that can be obtained by shopping in centres with relatively low price levels. In certain cases, transport costs may be ignored to avoid the physical exertion involved in walking along steep mountain trails. In areas where public transport facilities are not available, the people have no other option than to walk. Under such conditions, time units rather than transport costs will be of greater concern.

Inter-urban Interaction

Inter-urban interaction is measured by observing the sources of trading goods. For this purpo 12 higher order centres (I&II) and 11 lower order centres (third order = six and fourth orde five) have been selected.

The condition under which trade interaction occurs among the market centres in the Bagm Zone subregion is demand for trading goods in all observed 23 market centres and supply fr six centres. In fact, there is a virtual absence of trade interaction among most of the centr measured in terms of supply of trading commodities. Six supply centres include two first ord centres (Banepa and Bidur), three second order centres (Dhulikhel in Kavrepalanchowk distri Dhading Besi in Dhading district, and Chapagaun in Lalitpur district), and one fourth ord centre (Betrawati in Nuwakot district). In fact, only two centres (Banepa and Bidur) appear be important sources of trading goods for other local market centres. The other four centres a insignificant, each interacting with one centre (Table 8.1).

Bidur contributes 59 per cent of the total supply of trading goods to the four market centr which receive goods from it. Banepa supplies about 36 per cent of the total supply of tradi goods to the four market centres interacting with it. Out of the four market centres to wh Banepa supplies goods, three are located in the Kavrepalanchowk district and one (Chauta in the Sindhupalchowk district. Out of the four market centres depending on Bidur for t supply of goods, two (Dhunche and Kalikasthan) are located in the Rasuwa district, and two the Nuwakot district (Figure 12). The supply of goods from Bidur and Banepa amounts to and 6.3 per cent respectively of the total supply of goods to all the observed 23 market centr Out of the four centres obtaining goods from Banepa, Chautara is highly dependant on Similarly, two centres (Dhunche and Kalikasthan) receive most of their trading goods fr Bidur.

A study conducted in 1977 showed that Banepa had trade interactions with 38 local mar centres. In this respect, Banepa appears to be more important than Bidur. The city Kathmandu acts as a far superior intervening opportunity in the context of both these mar towns. This has greatly limited the flow of trading goods from them to other local mar centres. Bidur is well placed due to its location (relatively far away from Kathmandu). So centres, e.g., Dhulikhel and Panauti in the case of Banepa and Betrawati in the case of Bid exist as intervening opportunities which limit the flow of goods from these towns to other lo market centres.

Thimi, although ranked as a first order market town of the study area, is not an import source of trading goods to any local market centre. The use of this town as a source of trad goods is highly restricted due to the far superior intervening opportunities provided by the t cities of the valley.

One obvious interaction pattern that is discernible (Figure 12) is the pre-eminenc Kathmandu city as the main source of trading goods for the local market centres. Out of th centres covered, 22 market settlements have trade linkages with this city. Larger order cen depend more on Kathmandu than lower order centres for the supply of trading goods. Ther a successive, gradual decline of dependency on this city from the higher order to lower or

centres, with an average share of 75 per cent supply in the first order centres, 66.9 per cent in the second order centres, 47.3 per cent in the third order centres, and 43.8 per cent in the fourth order centres. Both complementarity and transferability are highly favourable for the development of interaction in the context of Kathmandu. Recently transferability has improved considerably after the development of modern highway linkages. Kathmandu has ideal conditions for being a supply centre, i.e., it is the primary city in the country. Greater concentration of economic activities in this city and the development of new modes of transportation have enabled the local traders to obtain goods, not from nearby higher-order centres, but directly from Kathmandu. As a result, the importance of larger centres, such as Lalitpur, Bhaktapur, Thimi, Banepa, Bidur, Dhulikhel, Panauti, and Barahbise, has been declining rapidly as intervening opportunities in the case of Kathmandu. Some of the small centres have completely substituted Kathmandu for immediate and closer centres in obtaining goods. Lalitpur and Bhaktapur are not important sources of trading goods for the market centres of the Bagmati Zone subregion. None of the centres located outside the Kathmandu Valley appear to interact with Lalitpur, and only one centre has some trade linkage with Bhaktapur. However, Lalitpur continues to be an important source of goods for most of the market centres in Lalitpur district. These centres do receive goods from Kathmandu city as well. Unlike this situation in the context of Kathmandu-Lalitpur, most of the market centres in the Bhaktapur district interact more with Kathmandu than with Bhaktapur. Kathmandu city provides 57.1 per cent of the total supply of trading goods to the market centres of the Bagmati Zone. The supply of goods from Lalitpur and Bhaktapur amounts to only 6.1 per cent and 0.6 per cent respectively.

Bharatpur's importance (in Chitwan district) as a supply centre is reflected in its connection with the market centres in Dhading district. This town exists as an important intervening opportunity, competing with Kathmandu for the supply of trading goods to the market centres in this district. The supply of trading goods from Bharatpur amounts to 6.3 per cent of the total supply of trading goods to the market centres in the study area.

Foreign sources were observed in only two centres, Banepa (I) and Barahbise (II). Both India and China are sources of trading goods for Banepa, while China is an important source for Barahbise. The latter phenomenon is a recent development, partly arising from the border location of Barahbise. The supply from these foreign sources amounts to 2.3 per cent of the total supply of trading goods to the local market centres.

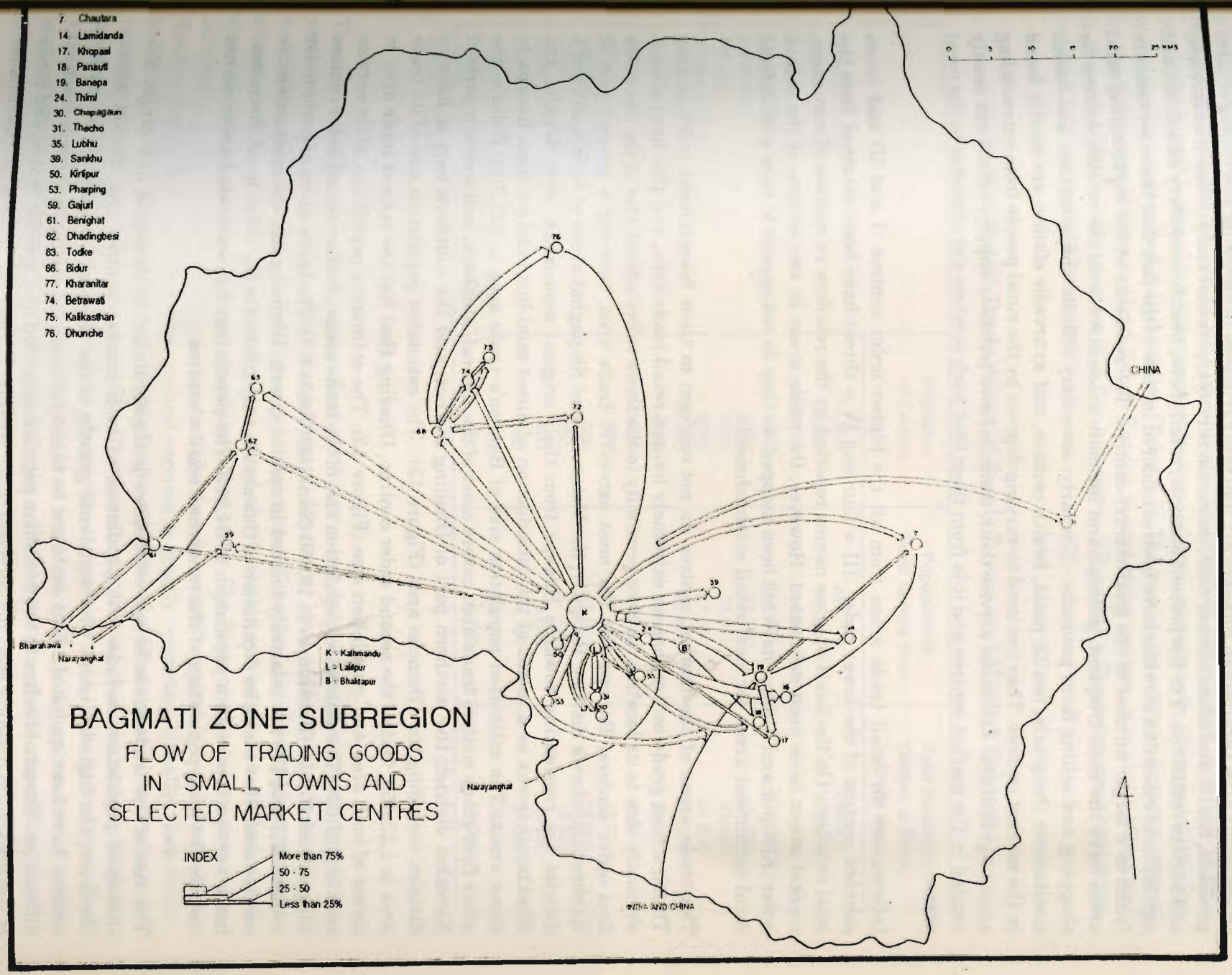
It is clear from Table 8.1 that internal interaction in the individual centres is significant. In other words, if interaction of a settlement with itself exists in a number of cases, this sort of interchange is relatively important in large centres such as Banepa, Bidur, Thimi, Chapagaun, Lubhu, and Pharping and it does not take place in most of the lower order centres. This internal interaction involves 6.9 per cent of the total supply, measured in terms of supply to the 23 centres considered for the present analysis.

The local traders have developed notable trading behaviour. It can be observed in a number of cases that the local retailers and wholesale dealers visit Kathmandu to purchase larger amounts of goods on a non-credit basis, while they usually patronise other higher order centres in this area to purchase commodities on a credit basis. The effect of intervening opportunity ceases to influence trade interaction very often when the benefit of credit trade is available. It is due to this simple reason that the wholesale trade areas of some of the local centres extend beyond the limit of the normal retail trade areas. This can be observed in the case of Dhulikhel.

Table 8.1: Sources of Trading Goods in Small Towns and Market Centres

Centres	Supply Sources of Trading Goods in Percentage												
	Kathmandu	Lalitpur	Bhaktapur	Banepa	Bidur	Dhading	Barahbise	Dhulikhel	Chapagaun	Betrawati	Local	Foreign	Bhai
Banepa I	70	-	-	-	-	-	-	-	-	-	28	2	-
Bidur I	80	-	-	-	-	-	-	-	-	-	20	-	-
Thimi I	67	-	7	-	-	-	2	-	-	-	24	-	-
Kirtipur II	96	-	-	-	-	-	-	-	-	-	4	-	-
Sankhuwasabha II	93	-	-	-	-	-	-	-	-	-	7	-	-
Dhulikhel II	100	-	-	-	-	-	-	-	-	-	-	-	-
Chapagaun II	40	46	-	-	-	-	-	-	-	-	14	-	-
Lubhu II	39	44	-	-	-	-	-	-	-	-	17	-	-
Panauti II	70	-	8	22	-	-	-	-	-	-	-	-	-
Barahbise II	50	-	-	-	-	-	-	-	-	-	-	50 China	-
Dhading Besi II	51	-	-	-	-	-	48	-	-	-	-	-	1
Chautara II	63	-	-	32	-	-	-	5	-	-	-	-	-
Khopasi III	25	-	-	75	-	-	-	-	-	-	-	-	-
Pharping III	78	-	-	-	-	-	-	-	-	-	22	-	-
Thecho III	14	50	-	-	-	-	-	-	-	23	-	13	-
Gajuri III	73	-	-	-	-	-	27	-	-	-	-	-	-
Lamidanda III	75	-	-	15	-	-	-	-	-	-	-	-	-
Dhunche III	19	-	-	-	81	-	-	-	-	-	-	-	-
Benighat IV	30	-	-	-	-	-	70	-	-	-	-	-	-
Kalikasthan IV	-	-	-	-	60	-	-	-	-	40	-	-	-
Todke IV	75	-	-	-	-	25	-	-	-	-	-	-	-
Kharanitar IV	45	-	-	-	50	-	-	-	-	-	5	-	-
Betrawati	69	-	-	-	41	-	-	-	-	-	-	-	-
Total (Average)	57.1	6.1	0.6	6.3	8.8	1.1	6.3	0.2	1.0	3.3	6.9	2.3	

Source: Survey


7. Chautara
14. Lamidanda
17. Khopasi
18. Panauti
19. Banepa
24. Thimi
30. Chapagaun
31. Thecho
35. Lubhu
39. Sankhu
50. Kirtipur
53. Pharping
59. Gajurl
61. Benighat
62. Dhadingbesi
63. Todke
66. Bidur
77. Kharanitar
74. Betrawati
75. Kalikasthan
76. Dhunche
CHINA
Bharahawa
Narayanghat
K = Kathmandu
L = Lalitpur
B = Bhaktapur
BAGMATI ZONE SUBREGION
FLOW OF TRADING GOODS
IN SMALL TOWNS AND
SELECTED MARKET CENTRES
INDEX
More than 75%
50 - 75
25 - 50
Less than 25%
Narayanghat
INDIA AND CHINA

Rural-Urban Relationship

In the study area rural-urban linkages are markedly reflected in shopping and selling of farm products, health and education services, extension services, personal and professional services, and service industries. For the present analysis, retail trade, health, secondary education, and agricultural extension services have been considered in view of the fact that these services are found in a larger number of the local market centres. The residents in the surrounding rural areas have the most frequent, general, and intimate association with the market centres for shopping and selling farm products. Similarly, secondary schools and campuses and health institutions (hospitals, health posts, health centres, and ayurvedic clinics) are mostly found in the market centres. They are used to varying degrees by the rural people from surrounding areas. Agricultural extension service (both technical and fertiliser supply) offices are mostly located in the market centres and it is from them that such services are extended to the rural areas.

Information on retail trade areas from all the higher order centres (I and II) and seven selected centres of the lower order (III = four and IV = three) have been obtained from the local retailers. On the basis of place names reported by the retailers as sources of customers, market areas have been delineated. However, the trade areas in two centres of the second order (Kirtipur and Lubhu) have not been mapped, as they do not appear to have well-defined rural catchment areas for local retail establishments.

The trade areas of the market centres do not conform to their hierarchical order *in toto*. Thimi, a first grade centre, has an extremely limited retail trade area, and this limitation is obviously due to its location (in close proximity to the three valley cities). Out of the two other first order centres, Banepa has the most extensive trade area, covering a greater part of Kabhrepalanchowk district. Recently, the Melamchi and Shipaghat areas of Sindhupalchowk district are reorienting towards Banepa from their original association with Sankhu and Bhaktapur towns as a result of the introduction of direct mini-bus services from Banepa to these areas. The estimated population size of Banepa's trade area is 245,700. Bidur's (the other first grade centre) trade area covers most of the central, northern, and western parts of Nuwakot district; the northern part of Dhading district; and the southern part of Rasuwa district, including the Dhunche area (Figure 13). The estimated population size of its trade area is 1,13,450. Out of the second order centres, Dhading Besi has the largest trade area in terms of both area and population size (Figure 13). The estimated population of its service area is 1,16,000. The estimated population size of the trade areas of other second order centres ranges from 37,950 (Barahbise) to 18,250 (Sankhu) (Table 8.2). The trade areas of lower order centres (III and IV) are relatively limited in spatial extent. Dhunche has the most extensive service area. However, the population of this area is only 8,600. On the other hand, Betrawati has a service area with a population of 34,000. The population figures quoted above do not include the local population of the concerned market centres.

The size of the trade areas of market centres is closely linked to threshold and range. The threshold population includes the population of both market centres and market areas. However, the highway users who contribute greatly to the threshold population of market centres have been excluded. This could not be taken into account owing to obvious practical difficulties. Threshold refers to the minimum population served by a specific centre, and range is the maximum distance that the consumers are willing to cover for visiting market centres

of specific grades. It is found that the (average) threshold population of the two first order centres (Bidur and Banepa) is 1,95,000, while that of the second grade centres is 39,000. The average threshold population of the lower order centres (III and IV) is 20,000. The average population does not appear to be a meaningful reference in some cases, and this is true particularly in the case of low order centres because of great variations in the population sizes of the market areas of individual centres (Table 8.2). The maximum average distance covered by the first order centres is about 34km. For the second order centres, it is about 10km, and in the case of lower order centres it is five kilometres (III and IV). There are great variations in individual centres in this respect.

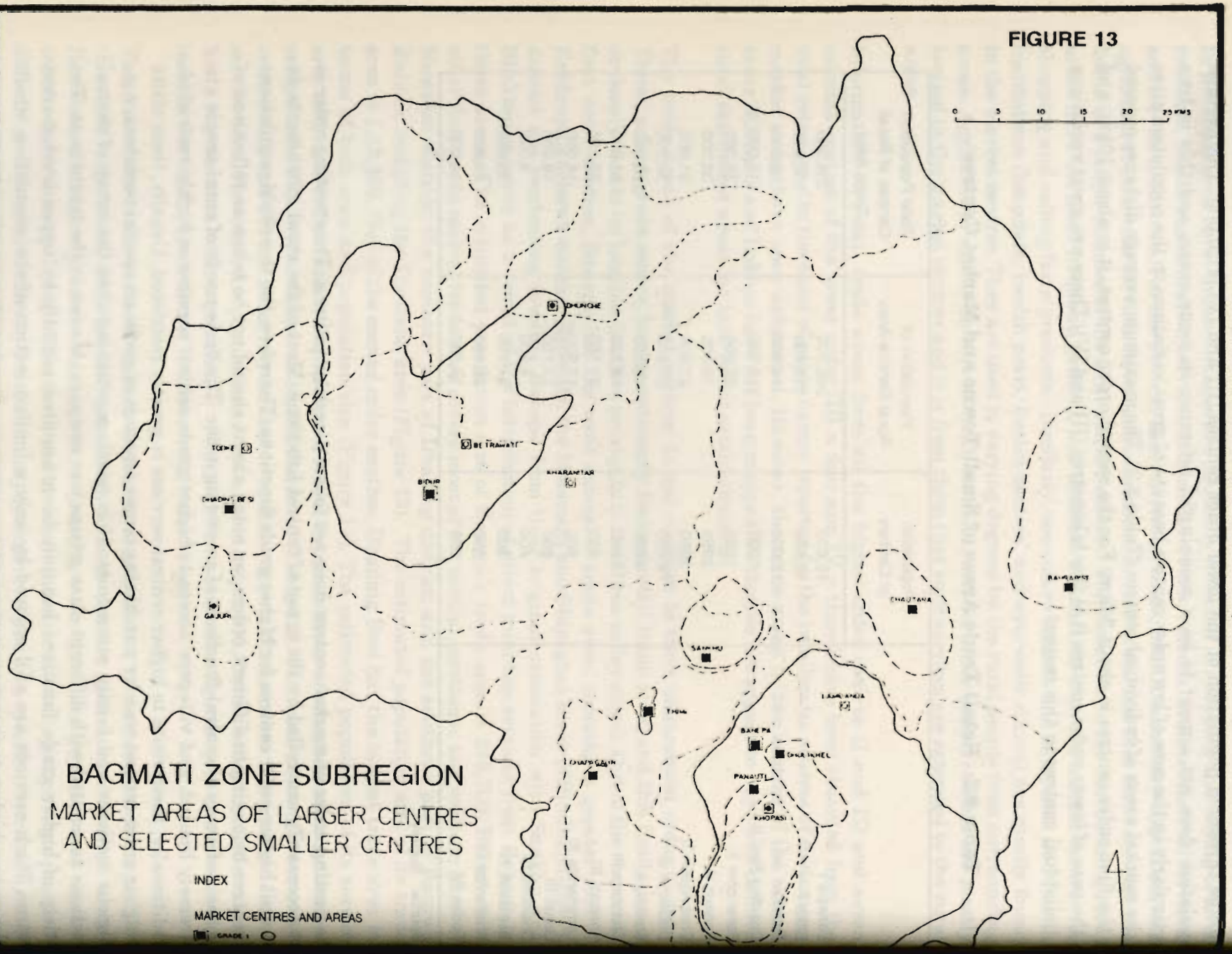
Table 8.2: Retail Trade Areas of Small Towns and Market Centres

	Population of Centres	Population of Rural Service Area	Total Population Centres of Retail Trade Area
Banepa I	12,600	245,700	258,300
Bidur I	18,800	113,400	132,200
Thimi I	17,050	14,950	32,000
Dhading Besi II	1200	114,800	116,000
Barahbise II	1050	37,900	39,000
Panauti II	2950	30,000	33,000
Chapagaun II	3950	27,000	31,000
Dhulikhel II	79,650	20,800	30,000
Sankhu II	4750	18,300	23,000
Chautara II	1300	19,700	21,000
Khopasi III	850	21,150	22,000
Lamidanda III	500	17,500	18,000
Gajuri III	850	17,150	18,000
Dhunche III	400	8,600	9,000
Betrawati IV	300	34,700	35,000
Kharanitar IV	850	28,150	29,000
Todke IV	250	14,750	14,000

Source: Survey

The nesting order of market centres does not follow a regular pattern. This nesting order is not necessarily controlled by the array of central functions. Most of the rural inhabitants do not visit higher-order centres for higher grade functions. Therefore, the threshold populations of centres belonging to different orders, as noted above, should not be taken as reflections of the basis of array of central functions of ascending order. The basic needs of rural people are extremely limited, and villagers' access to higher grade central services is highly restricted. Traditionally, their visits to higher central services is greatly restricted. Usually, their visits to higher order centres was for purchasing larger amounts of goods on special occasions, e.g., religious festivals and family ceremonies. It is worth mentioning that the array of central functions associated with different class groups was comparable even in the recent past. The variety of higher grade functions has only been acquired recently by upper level market centres. Such services are still enjoyed by only a limited section of the population which belongs to a higher socioeconomic stratum.

FIGURE 13



BAGMATI ZONE SUBREGION

MARKET AREAS OF LARGER CENTRES AND SELECTED SMALLER CENTRES

INDEX

MARKET CENTRES AND AREAS

GRADE I

In a number of cases, the viability of lower order centres is in jeopardy. Owing to changes in local economic conditions, greater concentration of activities in Kathmandu city, and development of new modes of transportation, trades of small lower order centres have increasingly started to obtain the goals and services they require not from nearby, slightly higher order centres, but from Kathmandu, even though the commuting distance is greater. The performance of intermediate functions by intermediate order centres for lower order centres is gradually decreasing. The people, particularly traders from lower order centres, tend to choose Kathmandu instead of intermediate and closer centres to purchase higher grade goods and services which cannot be obtained in the local, small market centres.

Educational and health services are other important service components which promote closer rural-urban linkages. Market centres are usually the seats of educational and health establishments, providing services to the surrounding rural areas. Out of the 77 small towns and market centres covered in the study, 57 centres have secondary school facilities, while higher educational (campus level) facilities are available only in Banepa and Bidur outside the valley. Health services are available in 39 centres out of which 37 have both educational and health service facilities. There are hospitals only in some upper level centres - two first grade centres (Bidur and Banepa) and three third grade centres (Chautara, Dhunche, and Dhading Besi). These hospitals provide services to rural areas in the Kavrepalanchowk, Sindhupalchowk, Nuwakot, and Dhading districts. The hospital in Banepa is a special case. It serves the urban population of the Kathmandu Valley as well. On the other hand, the hospital located in Dhunche is underused. This is due to its location in a sparsely populated area.

It is clear from Table 7.2 that all the upper grade centres (I and II), apart from Panauti, provide both educational and health services. On the other hand, only 37 out of 65 lower grade centres (III and IV) have both of these service facilities. In terms of the common location of these services, the market settlements in Rasuwa and the Kathmandu Valley are good places. The situation is relatively better in the Kavre-palanchowk district also. These two services do not share common locations in most of the market centres of Sindhupalchowk, Dhading, and Nuwakot districts. It is clear that educational facilities (schools) are available in a larger number of centres than health service facilities. Rural people have to visit two different locations for these two services in several areas. This is particularly so outside the Kathmandu Valley. In Rasuwa district, all three market centres have areas with both these services. The rural-urban relationship pattern, measured in terms of educational and health services provided by the 77 market centres, does not reflect the local conditions in a realistic way as there are a large number of other centres providing these services. There are 39 smaller centres that provide both health and educational services, 21 centres with health services only, and as many as 185 other centres with educational services such as secondary schools. The distribution of these centres is given in Table 7.2.

The central areas with secondary schools are markedly dispersed, and the dispersion pattern conforms fairly well to the distribution of population clusters in the study area. If the remote rural population pockets are excluded, the service areas of secondary schools fall within the limit of five kilometres. Some higher order centres, such as Bidur, Dhulikhel, Banepa, Dhading Besi, and Chautara, receive students from distant places, as they offer hostel facilities and other attractions. As health service facilities are available only in a limited number of centres, health service areas are comparatively more extensive than school service

areas. It should be noted that, unlike educational services, health services are not regularly used by the local rural people. Hence, this service does not contribute much to development or to rural-urban linkages.

Rural-urban relationships have further developed with the growth of agricultural extension services, including both technical and fertiliser supply services in most of the local market centres. Agricultural and technical extension services are available in 38 centres and fertiliser supply services exist in 45 centres (Table 7.1). Ten upper level centres out of 12 (I and II) provide technical services, while all these centres provide fertiliser supply services. On the other hand, only 28 lower grade centres (III and IV) provide technical services and 32 centres provide fertiliser supply services. It can observed that the service area of a technical extension service unit is more extensive than the fertiliser supply service area in most cases. Long distance linkages for these services are, uncommon apart from high level technical services provided by district headquarters, e.g., Dhulikhel, Chautara, Bidur, Dhading Besi, and Dhunche. The precise delineation of the areas covered by these extension services does not appear to be important, as these services are available in other smaller centres (not covered in the present study) on which information is not available.

Threshold Population of Services

As noted earlier, the local market centres provide a range of services which vary in number from 14 types in Banepa to two types in Adamghat. Different service functions require certain population levels for growth. The minimum population size is referred to as the threshold population. This threshold population can be expressed in terms of average population sizes of service areas in different service establishments located in the local market centres. For this purpose, three services have been selected. These include retail, secondary school education and banking services. It is true that service areas of retail services vary in spatial extent according to the type of goods offered. General shopping goods, e.g., clothes, serve larger service areas than ordinary shops dealing in goods like food grains. This differentiation has not been possible in the local market centres as shop units handle a mixed variety of goods both convenience and non-convenience. Out of the 17 centres on which information has been collected to determinine the service areas of retailing services, in four larger centres (Banepa, Bidur, Dhading Besi, and Panauti), nesting of service areas can be observed. While computing the average population of service areas, these centres are excluded. The average population size of service areas with regard to retailing appears to be 25,600. It is 20,000 if the average population is computed, or lower order centres (III and IV) only. The service area of a secondary school (educational services) has an average population of 7,500. A banking service unit serves an average population of 12,400 (Table 8.3).

Table 8.3: Threshold Population of Selected Services in the Market Centres

Services	Average Population of Service Area
Retailing	25,600
Banking	12,400
Secondary School Education	7,500

Source: Survey

The local situation reflects the fact that retailing requires a relatively large threshold population. This threshold population size is supposed to be met in the local service area (within walking distance) of a lower order market centre. Larger centres like Banepa and Bidur serve distant locations by offering higher order services along with other attractions. It is due to this reason that the service areas of retailing services in larger centres are relatively extensive. The service area of a secondary school lies within certain limits, e.g., normally one hour's walking distance, apart from some larger centres where students commute long distances owing to the availability of hostel or accommodation facilities. Banking services come in between retailing and educational services (secondary schools) regarding the threshold population in lower order market centres. Unlike in retailing and educational services, banking does not show great variation in population sizes of service area in individual market centres.

POTENTIAL GROWTH PATTERN OF SMALL TOWNS AND MARKET CENTRES

Market Centres as Potential Centres in Nepal

Nepal is under-urbanised and there is an obvious structural deficiency with regard t dispersed market centres. The need to develop a hierarchical structure for dispersed marke centres is apparent. The development of larger cities in a few localities, along with relevan linkage systems, is not a desirable alternative. A network of dispersed market centres i absolutely necessary for several reasons. Marketing facilities should be available even a scattered production points and in population pockets. Services should be provided to rura areas. Small towns and market centres provide enough opportunities for these purposes. I particular, such settlements can be regarded as desirable locations for the provision of number of services such as education, health, postal services, and extension services Therefore, small towns and market centres will continue to be potential growth centres i Nepal. Along with growth, development should take place so that various services can b provided. However, all centres do not have equal potential for growth. Their potentia depends, to a varying extent, on a number of factors such as comparative advantages locational characteristics, population distribution. and resource base.

Potential of Larger Centres

Larger market centres in the Bagmati Zone include Thimi, Kirtipur, Sankhu, Lubhu, an Chapagaun in the Kathmandu Valley; Banepa, Dhulikhel, and Panauti in Kavrepalanchow district, Barahbise and Chautara in Sindhupalchowk district, Bidur in Nuwakot district, an Dhading Besi in Dhading district. The larger centres of the Kathmandu Valley are a differen case. These centres benefit greatly from the comparative advantages of the Kathmand metropolitan area which has a locational combination of specialisation, in various sectors, an functional concentration, and these conditions are impossible to find in any other part of th country. It is because of these special conditions that rapid urbanisation is taking place in th Kathmandu Valley. The larger market centres located in the Kathmandu Valley play a important role in the urbanisation of the valley. The Thimi area has considerable potentia for further industrial development since the site has advantages, i.e., it is in close proximit to new manufacturing localities. In addition, the advantage of a big national hospital locate in close proximity to the market town of Thimi will promote further development. Thimi traditional advantage, i.e., tourist-oriented ceramic works appear to have good prospects fo sale in the valley within the context of the rapid growth of tourism. Unlike Thimi, Kirtipu does not have suitable sites for modern manufacturing establishments because of its locationa disadvantage. However, it continues to benefit from the university complex located in clos proximity,and provides different services and accommodation facilities to the studen population. Carpet industries, a growing business in Nepal, are being established in this town It is also quite possible that both Thimi and Kirtipur may provide new sites for the expansio of residential areas of the Greater Kathmandu Metropolis (Kathmandu-Lalitpur). Th potential sites could be lands close to the new highway in the case of the former and th north-facing, flat foot-hill zone in the case of the latter.

Sankhu, Chapagaun, and Lubhu are other larger market towns in the valley. All of them were important historical market towns, providing marketing facilities to their extensive rural hinterlands. Chapagaun and Lubhu continue to be active agro-service centres, but Sankhu has declined. Sankhu (located 18km east of Kathmandu) and Chapagaun (located 14km south) are still located in peripheral areas with reference to the Kathmandu Metropolis. Considering the level of existing transportation facilities, these two centres do not appear to have high potential for growth. However, Chapagaun will continue to serve the extensive southern part of Lalitpur district. Unlike these two market towns, Lubhu is the most active industrial centre, known particularly for its textile industry. Recently, carpet and garment industries also have been established. This development, along with the setting up of a number of brick kilns in close proximity, indicates that Lubhu will benefit considerably from the comparative advantage of its location near the the Greater Kathmandu Metropolis.

Outside the Kathmandu Valley, Banepa appears to be the most important market town with high potential for growth. Its long association with an extensive traditional service area is an advantage. The local agricultural resource base is quite favourable and Banepa's development as a market town throughout successive historical periods is based on agricultural growth. This town has the potential to expand its role as a trading centre, a service centre, and, possibly, as a cottage industries' centre. Banepa is likely to grow at a modest rate in the future. Moreover, it could benefit considerably from its location near the Kathmandu Metropolitan area. With the advantage of a good road transportation network, attractive site facilities, and the provision of a wide range of services, Banepa could become an alternative site for the industrial extension required by the greater Kathmandu Metropolis. The establishment of a large industrial enterprise (carpets) in Banepa is indicative of potential growth as an industrial centre.

Bidur, Dhading Besi, Chautara, and Barahbise are larger market centres with potentials for growth. Bidur is an active trading centre. It is also a centre for services. It has a rich agricultural resource base. Bidur has the potential to expand its role both as a trading and as a service centre. It is likely to grow at a modest rate. However, it does not appear to have good prospects for large-scale industrial development in the near future. Dhading Besi is another new growth centre. Initially, it developed along with the establishment of the district headquarters, and it acquired trading functions only later. It has a central location in Dhading district and no other large centre exists in close proximity. With the support of the extensive hinterland in the central and northern parts of Dhading district, Dhading Besi is likely to grow as a market town and services' centre. After the completion of the bridge over the Trishuli River, its locational situation will improve considerably. However, the growth of Dhading Besi could possibly take place only at a very modest rate because of the presence of a number of smaller trading centres along the highway in the south. Chautara is a district headquarters' town. It has a wide range of administrative offices and service functions and has the potential to expand as a services' centre. These services are and will continue to be an impetus to the development of trading functions as no other important market centre exists in close proximity. Barahbise, with its locational advantage as a border town in the north, could benefit from trade with Khasa, a border centre in Tibet. The recent commercial development that has taken place in Barahbise is of this nature. However, the growth of this town as a border commercial centre depends on government policies regarding border trade with China.

Dhulikhel and Panauti are other larger centres. Dhulikhel, as a district headquarters, will continue to benefit from additional public sector inputs into service areas. Moreover, it has tourist potential and Panauti has the advantage of being located near the roadhead. However, these centres have not grown rapidly as a result of the location of a superior market town (Banepa) in close proximity. Obviously, they cannot cope with the competition.

Potential of Lower Order Centres

There are 27 lower order market centres in the Kathmandu Valley. All these centres, except a few, e.g., Gothikhel, Lele, Dharmasthali, Tokha, and Sundarijal, are directly influenced by the Greater Kathmandu Metropolis. Some of them are developing into industrial centres by acquiring either industrial functions, e.g., carpet making linked to the national economy, or by establishing industries (brick manufacture) and providing others services to the metropolitan market area. A number of the local, small market centres are potential sites for such activities. These centres can also be increasingly used to establish different services catering to the local people and the surrounding rural areas. Some centres, e.g., Sitapaila, Saibu, and Sunakothi, suitable sites for the expansion of residential localities of the Greater Kathmandu Metropolitan area, as there are already some indications of such developments.

Smaller centres outside the Kathmandu Valley can be grouped into three classes regarding their growth potential - i) centres with good potential, ii) centres with limited potential, and iii) centres without potential. Out of the 38 smaller centres, only two centres appear to have potential for reasonable growth in the future. They are Tamaghat in the Panchkhal area and Dharke in the Prithivi Rajmarga area. In the Panchkhal area, there are three small centres including Tamaghat, Lamidanda, and Panchkhal (not covered in the study). This area has a rich agricultural resource base and has been extensively exploited for rice cultivation. A number of rice processing mills have been established. There are possibilities for agricultural development, particularly tropical vegetables and fruits for the Kathmandu Valley market. The Panchkhal area has potential as an important market town, possibly with the physical grouping of the existing three, small centres. Some large industrial enterprises have already been established in the Dharke area. Dhading district has rich agricultural resources that can be used for commercial production. Dharke has the potential for growth as an industrial centre.

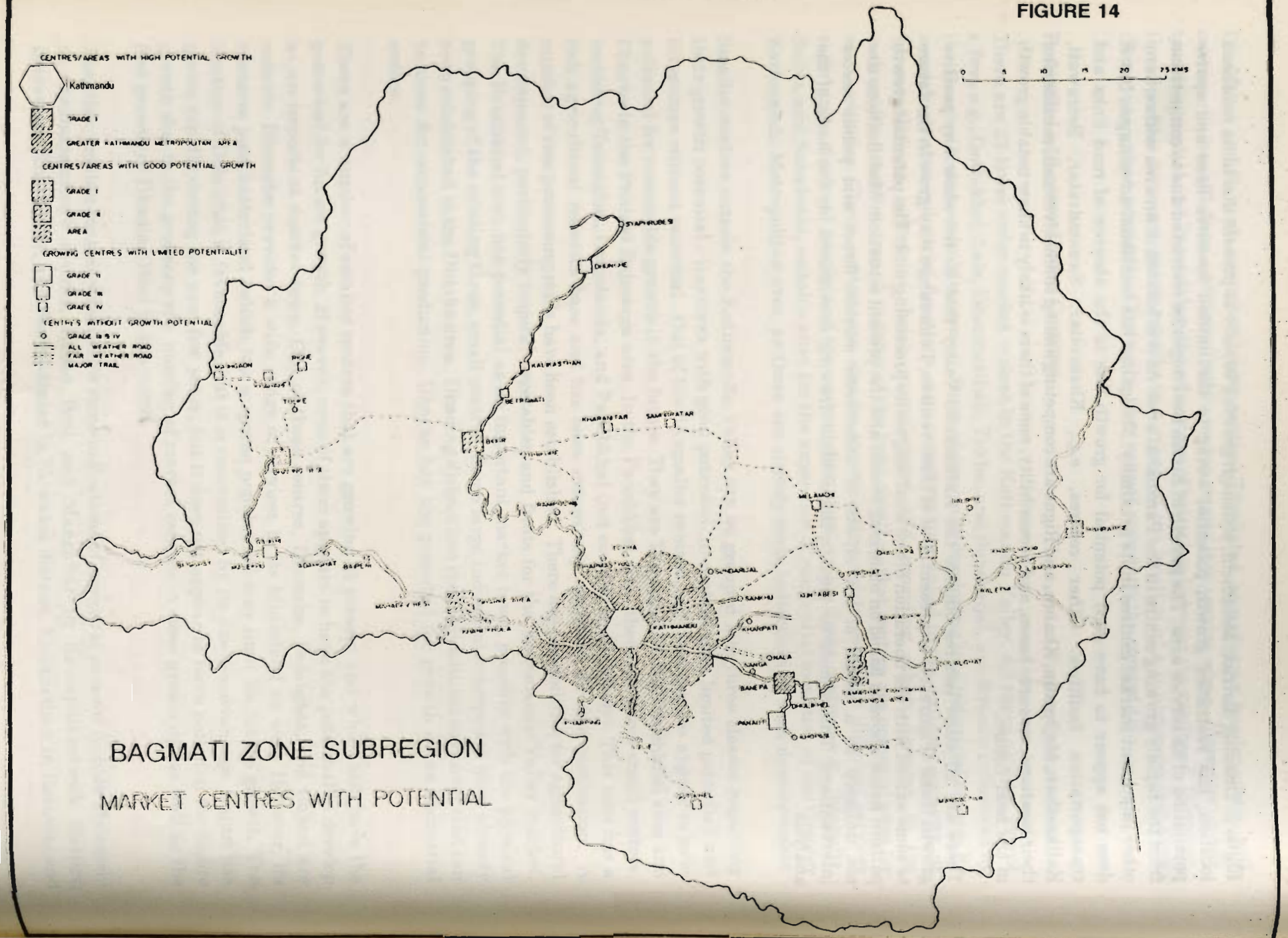
There are a number of smaller centres that are growing at present and which also have the poten-tial for future growth. However, none of them appears to have the potential to develop as an important market town. Out of these centres, Dhunche, Dolalghat, and Gajuri are notable. Dhunche provides a wide range of services to its hinterland as well. However, its resource poor hinterland (which has a sparse population) may limit its future growth. The location of Dolalghat is favourable, but it is constrained by its site disadvantage. Gajuri has grown rapidly during the past few years, but it does not appear to have potential for future growth due to the presence of a number of market centres in close proximity, as well as the fast growth of Dhading Besi in the north.

The other smaller centres which show some indications of growth at present include Melamchi in Sindhupalchowk district; Kunta Besi and Mangaltar in Kavrepalanchowk district; Betrawati, Kharanitar, and Samundratar in Nuwakot district; Kalikasthan in Rasuwa; and

Rigne in Dhading district. Melamchi, although growing rapidly at present due to its roadhead location, has restricted growth potential owing to the limited resource base and sparse population of its service area. The growth of Kunta Besi might be restricted due to competition from the rapidly growing centre in the Panchkhal area. As it is located in an area without any other important market centres in its proximity, Mangaltar has locational advantages, but it does not appear to have good potential for growth due to the absence of road links and transportation facilities. Other centres, e.g., Kharanitar, Samundratar, Betrawati, Kalikasthan, Majhgaun, Khahre, and Rigne are competing among themselves and, considering their locations, resource bases, and accessibility, none of them is likely to show notable growth in the near future.

There are 20 other centres outside the Kathmandu Valley that do not show any positive growth trend (Figure 14) at present. Out of these centres, Lamosangu may grow in the future to some extent with the operation of the local magnesite processing unit. The potential growth pattern noted above is based on emerging trends and the present situation. Modifications are not unlikely as a result of the effects of unforeseen market forces and public sector interventions. This should be kept in mind while drawing conclusions on the basis of the analysis.

FIGURE 14


CENTRES/AREAS WITH HIGH POTENTIAL GROWTH
Kathmandu
GRADE I
GREATER KATHMANDU METROPOLITAN AREA
CENTRES/AREAS WITH GOOD POTENTIAL GROWTH
GRADE I
GRADE II
AREA
GROWING CENTRES WITH LIMITED POTENTIALITY
GRADE III
GRADE III
GRADE IV
CENTRES WITHOUT GROWTH POTENTIAL
GRADE II & IV
ALL WEATHER ROAD
FAIR WEATHER ROAD
MAJOR TRAIL
0 5 10 15 20 25 KMS
BAGMATI ZONE SUBREGION
MARKET CENTRES WITH POTENTIAL

STRUCTURAL AND FUNCTIONAL GAPS IN THE NETWORK OF SMALL TOWNS AND MARKET CENTRES

Structural Gaps

There is an obvious structural deficit regarding hierarchically dispersed market centres in the Bagmati Zone, although the local conditions are relatively good within the national context. There are only 187 market centres in the study area at the ratio of one centre per 57 villages, serving on an average a population of about 8,000. Most of these centres are very small. There are only 77 market centres that have more than 10 functional units. The ratio of these larger market centres is one per 138 rural settlements, and one centre serves on an average a rural population of 19,500. Out of these 77 market centres, only 12 are important market towns, and the ratio is one town per 883 rural settlements; one town serves on an average a population of 125,000.

The basic issue is not, however, the limited number but their distribution. Market centres are highly concentrated in a few favoured localities. Out of 77 market centres, 30 are located in the Kathmandu Valley. A similar pattern of concentration is discernible in the case of larger centres. Out of 12 such larger centres, five are located in the Kathmandu Valley and three in the Banepa area. There are extensive areas that do not have any market centre. Such areas are markedly notable in the Lalitpur, Kavrepalanchowk, Sindhupalchowk, and Dhading districts.

The normal limit of the service area, measured in terms of shopping and selling the farm products of the rural people, is five kilometres in the case of a lower order market centre (II and IV). Seemingly, the market area sizes of smaller central places (not covered) may be smaller than the normal size. As noted earlier, there are 187 market centres (including centres with less than 20 functional units) in the Bagmati Zone, and extensive areas lie beyond the limit of five kilometres from these centres. These areas have an estimated population of 188,000. The distribution of this population section is given in Table 10.1.

Table 10.1: Population of Areas Beyond the Five Kilometre Limit

District	Location	Estimated Population
Lalitpur	Southern part	14,000
Kavrepalanchowk	Southern & eastern parts	35,000
Sindhupalchowk	Northern & southeastern parts	58,000
Dhading	Northern part	40,000
Nuwakot	Northwestern & southeastern parts	41,000

Source: Survey

Sindhupalchowk district has the largest population size (58,000). The average population of the retail service area of the lower order market centres (III and IV) is about 20,000. The population of 188,000, living in areas beyond the normal limit of the service area, is equivalent

to the average threshold population of nine lower order market centres (III and IV). Thus, there is a deficit of smaller market centres in the local network. This deficit is apparent with regard to both lower order centres and smaller central places.

The deficit is obvious regarding higher order market towns. There are only 12 higher order market centres in the study area. Figure 13 shows that extensive areas do not fall within the service areas of these centres. They serve an estimated rural population of 643,000. There are 1,058,000 rural people who do not live in the service areas of these large centres. Some of these people do not have access to the marketing services of higher order centres at all, and others depend heavily on the valley's cities for higher order goods and services. It appears that these people tend to substitute the valley's cities, particularly Kathmandu, for intermediate and closer centres to obtain higher order goods and services. This is mainly due to the fact that either larger centres are not easily accessible or higher order goods and services provided by the existing larger centres do not compare positively with those offered by Kathmandu city . Banepa appears to be an exception. Similarly, some people in the Dhading district tend to substitute Bharatpur for Kathmandu.

The development of market centres, both large and small, is highly constrained by the scattered population distribution. Most of the rural settlements are very small and they are widely scattered. For instance, there are more than 2,600 rural settlements with a population of less than 250 in Kavrepalanchowk, 2,100 in Sindhupalchowk, 2,400 in Dhading, and 1,400 in Nuwakot. Out of such settlements, several have a population of less than 50. Poor accessibility is another factor limiting the growth of market centres in areas dominated by dispersed, small rural settlements. People from surrounding rural areas cannot visit market centres regularly, and visits are markedly periodic and occasional as a result of inaccessibility.

The difference in price levels of trading commodities is another important factor which limits the development of market centres. Great variations of price index occur between areas with or without motorable road links. The local people very often ignore closer centres and visit distant centres whenever variations in price levels occur.

Functional Gaps

The local market centres, excluding a few, do not have a strong commercial base. As a result, the relative importance of market centres fluctuates quite often. Only 26 market centres conduct wholesale trade, out of which only seven are of some importance. Out of the 77 market centres, 11 centres even do not have shop units dealing exclusively in non-convenience goods. Most of the centres do not have specialised shops dealing in common shopping goods, e.g., domestic metal goods and footwear. The majority of the rural population has to commute long distances to larger centres for services, e.g., goldsmiths, as the local centres do not provide such services.

Secondary school education is a service component which does not show an apparent gap. There is one lower/upper secondary school per 7,600 in the Bagmati Zone. There are 293 dispersed central places which provide this service. The average population size of the service area of secondary schools is 7,500. Thus, the school population ratio confirms the threshold population size. Central places providing secondary school educational services are well

distributed with reference to population clusters. There are only a few localities that do not have easy access to existing schools. Such places exist in the northern part of Sindhupalchowk district, the southern part of Kavrepalanchowk district, and the northern part of Dhading district. However, the network is generally good, and no service gap exists regarding this service provision.

One apparent spatial issue regarding secondary school educational services is related to school locations . In a number of places, local people do not have easy access to schools due to unsuitable locations. There are eight market centres (out of 77) that do not have lower/upper secondary schools. This is an indication of how nodality points are ignored in selecting school locations. Another issue with spatial implications is related to facilities available at schools. The provision of qualified and trained teachers is absolutely necessary and it is due to the absence of such that the use of available educational facilities is limited. In several places, the local people ignore local facilities and use facilities available elsewhere at long distances away in the valley's cities - Dhulikhel, Bidur, and Dhading Besi.

Health services provided by health posts, health centres, and hospitals are adequate in terms of the physical network. The number of locally available establishments is not so numerous compared to secondary schools. However, the network is of reasonably acceptable standards. There are two defects regarding health services. One is the locational issue (of the same nature seen in the case of secondary schools). In a number of places, health establishments do not have nodal locations. The most serious issue is related to the quality and extent of services provided by the local health establishments. The physical network exists, but services in terms of health personnel and adequate medicines are at a very low level. It for this reason that many local people do not use the locally available health services. This situation exists in a large number of centres. The knowledge gap regarding health service facilities is also responsible for under-use of locally available facilities in several cases.

Unlike educational and health service facilities, extension services are not adequately available in the study area. Out of the 77 market centres, only seven have extension services related to cottage industries. In the case of agricultural extension services, 45 centres provide fertiliser supply services and 38, technical extension services. The existing network of extension services is poor and available services are provided in a very inefficient manner. The existing market centres should be fully used for expansion of such services. In a number of places, the locational arrangement of such service units should be changed so that available services are more accessible for the local rural people. Increasing service efficiency is equally important.

Infrastructural Gaps

Infrastructural gaps are obvious in most of the local market centres. Figure 8 clearly shows the infrastructural gaps in the case of four services; viz., all- weather road links, tap water, electricity, and telephones. Only 32 centres have all four facilities. Out of 77, 40 centres do not have telephone facilities. There are 15 centres without electrical facilities. Tap water supply is not available in 12 market centres. All weather-roads do not link 19 centres, and some of them do not have any road links. There are three centres that do not have any of these four facilities (Annex B).

In most cases, available services are not sufficient to meet the local needs. This situation exists particularly with regard to telephone and tap water supply facilities. Electricity supplies are relatively better, excluding Devighat and Dharke which have limited service provisions. Road conditions are very poor in most areas. However, within the market centre areas, urban road links are relatively well maintained in most cases.

Other infrastructural facilities, such as surface drainage, sewage disposal, and sanitation, are underdeveloped. Even in larger centres, such infrastructural facilities are either very poor, or not available. In some of the new centres, e.g., Dhading Besi and Gajuri, and in some newly expanded areas of old centres like Barahbise and Banepa, the conditions of surface drainage and urban roads are reasonably good but in general, the gap is apparent.

STRATEGIES FOR THE DEVELOPMENT OF SMALL TOWNS AND MARKET CENTRES

Importance of Small Towns and Market Centres

Why are small towns and market centres necessary? Why should they be developed? These questions will be examined in this chapter within the context of the study area.

Theoretically, the development of small towns and market centres is based on the central place theory. This theory states that widespread economic growth requires the development of an articulated and integrated system of central places. Central places are urban places that distribute specialised goods produced at some fixed locations. Urban centres make available such goods and services, requiring fixed locations and a large number of consumers, to people living in rural areas. Central places are both collection points and distribution centres for goods. As the system of central places becomes more articulated, smaller centres offer more frequently-used goods and services, and higher order services and goods are provided by larger centres. Thus, there is an ascending order of services and goods, along with the increasing size of central places. In a region with a well-articulated and integrated system of central places, people living in or near small towns have easy access to basic goods and services in local market centres, as well as to higher order services and goods which can be obtained in larger towns and cities with a large threshold population. An articulated and integrated hierarchy of settlements provides potential access to market centres of different sizes for people living throughout the country.

Despite the relatively better conditions existing in the Bagmati Zone, there is an obvious structural deficit of well-integrated market centres. As noted earlier, the gap is obvious. There are only 187 central places that provide some kind of commercial services, out of which 110 are very small trading points. One such central place serves about 57 villages or rural settlements, covering an average population of 8,000. The ratio is 138 villages per market centre with more than 19 functional units serving a population of 1,95,000. Due to the lack of dispersed market centres, opportunities for development are lost and the possibilities for equitable development of rural areas are limited. In this context, the development of a hierarchical structure of dispersed market centres is apparently necessary.

Small towns and market centres are appropriate places for the location of field offices of different line agencies (ministries and departments). Such offices should be located at suitable sites if they are to provide efficient services to rural areas. Past efforts regarding the location of field agencies were apparently not adequate to bring about desired changes in the existing situation. In many places, such units are not located at nodal points. Market centres should be used for locating and relocating field agencies to maximise service efficiency.

It is also apparent that small towns and market centres are effective nodal points for providing basic services such as educational, health, postal, and extension services. In a number of places, secondary schools and health posts/centres are not located in accessible areas with reference to the rural population which they serve. In several places, these services have different locations, although they serve the same target groups. Because of inconvenient

locations, many local people do not use basic services, although service facilities exist locally. To bring about improvements in the local situation, services should be relocated at market centres.

In view of the high level of urbanisation achieved in the study area, locally there is high potential for commercialisation of the landscape. However, the absence of a good network of market centres in several places is a problem. This is particularly notable in districts outside the Kathmandu Valley. There is an urgent need for the development of well integrated, dispersed market centres if the Bagmati Zone is to benefit from the most powerful local hub of metropolitan development.

Role of the Government

Urban growth takes place as a result of the increasing demand for goods and services provided by urban areas. Therefore, the growth of market centres is basically an outcome of market forces. Any attempt made in the name of a grand design against the market mechanism is unrealistic. Therefore, spatial policies should be realistic and should be implemented with caution. They should be also in conformity with the emerging system. In fact, the government has to play the role of a facilitator. Spatial policies designed to create a new set of market centres would be unwise and extremely unrealistic if they ignored the existing network. Such policies will result in the redistribution of economic activitities with great damage to the national economy or growth potential.

The existing system of market centres must be strengthened if development opportunities are to be maximised. The network of existing urban centres should be made to work more efficiently in order to increase the national output. It should be used effectively for enhancing service efficiency. By strengthening the existing system, the growth of national output as well as equitable distribution of the fruits of growth can be achieved. The focus should inevitably be on the largest towns and cities. Small towns and market centres should be considered within the relevant contexts. They should be used to exploit development opportunities lying elsewhere, as well as to provide necessary services to the people living in different localities.

The government can strengthen the existing network of market centres in various ways . We have outlined some of these below.

1. Developing and improving rural roads to increase the accessibility of rural areas to market centres
2. Concentrating the field offices of line agencies at market centres in order to enhance the centrality of market centres
3. Locating basic services, such as health, educational, and postal services at market centres to expand the range of services provided by market centres
4. Improving and developing infrastructural facilities at market centres in order to improve the working conditions of the labour force as well as to upgrade the urban environment.

The government can play a significant role in the development of new market centres in areas where there is a structural deficit. It should be noted that, in several areas in remote localities, educational and health institutions are located elsewhere, ignoring the advantage of common locations. Nodal points can be created in such resource poor areas by carefully selecting and identifying common locations for such services. As a result of the concentration of service activities in localities with relatively favourable conditions, it is likely that the localities will acquire market functions. Hence, in this way the government can play a meaningful role in filling structural gaps.

Investment Strategy

Four types of public investment can be distinguished with regard to the development of urban centres.

First, public investment should be directed at expanding the national output. This investment should be made in order to maximise the returns of the investment. The objectives are to produce goods and provide services at the lowest prices. For this, the most powerful nexus created by larger urban centres should be fully exploited for the growth of the national economy. The focal point of the overall national economic growth strategy should be the Kathmandu metropolitan area and the adjoining urbanised localities, including the Banepa area. These are the places that have comparatively more advantages for contributing to national economic growth. The concentration of transport facilities, a wide range of services, opportunities created by the accumulation of investment over a long period, and a skilled labour force are the advantages of the Kathmandu Valley urban area. The strategy should be to use these strengths for increasing national output.

Second, the investment strategy should aim at using the opportunities for development that are available in small towns and market centres elsewhere. This investment should be made to strengthen and enhance the local economic potential. Small towns have conditions that are conducive to the growth of small and medium-scale industries, crafts, and cottage industries which can serve the local markets as well as meet the demands of other places. Local agro-processing and forest product based industries, e.g., Nepali paper-making, and a host of other cottage industries based on local raw materials and skills are important development possibilities in small towns and market centres. Such developments cannot normally take place in the highly urbanised areas of the Greater Kathmandu Metropolis.

Third, the investment strategy should aim at providing minimum services such as health, education, drinking water, and electricity to the population of the country as a whole. The network of market centres provides an effective spatial framework for the expansion of such services, particularly health and education.

Fourth, adequate investment should be made for the expansion and improvement of infrastructural facilities in small towns and market centres. Basic infrastructural facilities such as drinking water and telephones are unavailable in most cases. Roads, particularly urban roads, are poorly maintained. Other services, such as sanitation, sewage diposal, and surface drainage, are not available in most cases. Infrastructural investment in urban localities should not only be directed to improving urban welfare facilities but also to contributing to the national output.

Strategy for Infrastructural Development

The government plays a paramount role in providing basic infrastructural services in Nepal in two ways - formulating policies and strategies for urban infrastructural development and implementing various sectoral programmes. The provision of basic infrastructural services, such as water supplies, electricity, and telecommunications, for the urban areas is still the sole responsibility of the government. The development of some other services, e.g., education, health, and urban roads, is carried out by the government to a significant extent. This state of affairs is likely to continue in the near future.

There are two basic issues that should be addressed with regard to infrastructural development in market centres - 1) the low level of infrastructural facilities and 2) poor management of available facilities. Small urban centres are not considered priority areas by the government for infrastructural investment, nor are there effective provisions for managing available services. A strategy should be developed to promote the direct involvement of the private sector in the development of urban infrastructural facilities. This is particularly possible in sectors such as drinking water, urban roads, drainage, and sanitation. Even in educational and health service sectors, private sector involvement can be increased considerably. The private sector strategy is likely to ensure proper prioritisation and effective management of infrastructural services in small towns and market centres.

Institutional Arrangements

A decentralised approach, despite legislative provisions, has not been successful so far in the municipalities. Development activities in municipal areas are highly centralised, with local bodies depending more on the sectoral agencies of the government.

There is also an institutional vacuum in the management of non-municipal urban places. In the Bagmati Zone, there are only six municipalities, including the three cities of the Kathmandu Valley. Out of the 77 market centres, only three (Banepa, Bidur, and Dhulikhel) have formal bodies to look after their affairs. The district level authorities do not have any institutional cells that are responsible for small towns (non-municipal) and market centres.

Chances of smaller towns being incorporated into municipalities are limited at present. This is partly due to the fact that once they become municipal towns, they acquire a formal status equivalent to the metropolitan city of Kathmandu. The issue can be considerably resolved by developing a legal framework for classifying towns into three classes - 1) larger cities, 2) medium-sized towns, and 3) smaller towns. This type of provision, which will bestow a lower status with limited authority on smaller towns, is likely to be a relevant institutional arrangement in dealing with the smaller urban centres. Separate cells could be created in formal local bodies of the districts in order to supervise the local affairs of market centres without formal municipal bodies. This institutional framework can be made to work effectively through a proper decentralisation scheme.

Development of Database

Little is known about the dynamics of small towns and market centres in Nepal. Comprehensive information must be collected on them in order to deal with the issues of small

towns and market centres. Further research is urgently needed to acquire accurate insights into the relevant issues. Databases on small towns and market centres could be developed by:

1) introducing new methods for effective spatial planning;
2) developing appropriate micro-level planning by means of decentralised schemes;
3) making market centres the focal points for planning development activities at the local level;
4) taking censuses on a regular basis for developing local level databases; and
5) developing a database system at the local level.

ANNEXES

Annex A
Hierarchical Order of Market Centres

A. First Order Centres

1. Banepa (Kavrepalanchowk)
2. Bidur (Nuwakot)
3. Thimi (Bhaktapur)

B. Second Order Centres

1. Kirtipur (Kathmandu)
2. Sankhu (Kathmandu)
3. Chapagaun (Lalitpur)
4. Lubu (Lalitpur)
5. Dhulikhel (Kabhre)
6. Panauti (Kabhre)
7. Chautara (Sindhupalchowk)
8. Barhabise (Sindhupalchowk)
9. Dhading Besi (Dhading)

C. Third Order Centres

1. Thankot (Kathmandu)
2. Budhanilkantha (Kathmandu)
3. Pharping (Kathmandu)
4. Panga (Kathmandu)
5. Thecho (Lalitpur)
6. Thaiba (Lalitpur)
7. Harishidhi (Lalitpur)
8. Sidhipur (Lalitpur)
9. Saibu (Lalitpur)
10. Khopasi (Kavrepalanchowk)
11. Lamidanda (Kavrepalanchowk)
12. Dolalghat (Kavrepalanchowk)
13. Lamosangu (Sindhupalchowk)
14. Gajuri (Dhading)
15. Khanikhola (Dhading)
16. Dhikure (Nuwakot)
17. Dhunche (Rasuwa)

D. Fourth Order Centres

1. Thankot Checkpost (Kathmandu)
2. Balambu (Kathmandu)
3. Dharmasthali (Kathmandu)
4. Sundarijal (Kathmandu)
5. Indrayani (Kathmandu)
6. Gokarna (Kathmandu)
7. Tokha (Kathmandu)
8. Sitapaila (Kathmandu)
9. Chalnakhel (Kathmandu)
10. Bungmati (Lalitpur)
11. Lele (Lalitpur)
12. Godawari (Lalitpur)
13. Sunakothi (Lalitpur)
14. Gotikhel (Lalitpur)
15. Bode (Bhaktapur)
16. Gamcha (Bhaktapur)
17. Kharipati (Bhaktapur)
18. Sanothimi (Bhaktapur)
19. Tamaghat (Kavrepalanchowk)
20. Mangaltar (Kavrepalanchowk)
21. Dapcha (Kavrepalanchowk)
22. Kunta Besi (Kavrepalanchowk)
23. Sanga (Kavrepalanchowk)
24. Nala (Kavrepalanchowk)
25. Khadichaur (Sindhupalchok)
26. Balephi (Sindhupalchowk)
27. Jalbire (Sindhupalchowk)
28. Sangachowk (Sindhupalchowk)
29. Malekhu (Dhading)
30. Benighat (Dhading)
31. Baireni (Dhading)
32. Dharke (Dhading)
33. Mahadev Besi (Dhading)
34. Khahare (Dhading)
35. Todke (Dhading)
36. Ringne (Dhading)
37. Majhgaun (Dhading)
38. Adamghat (Dhading)
39. Betrawati (Nuwakot)
40. Deorali (Nuwakot)
41. Kharanitar (Nuwakot)
42. Samundratar (Nuwakot)
43. Chaughada (Nuwakot)
44. Ranipauwa (Nuwakot)
45. Kalikasthan (Rasuwa)
46. Syaphru Besi (Rasuwa)

Annex B

Functional Types, Infrastructure and Population

S.N. Centres	Order	Education		Post Office		Others					Retailing			Catering		Industry			Health Services		General Adminis-tration		District Administration			Infrastructure				Population
		School	Campus	Additional/mini	District	Bank	Personal	Professional	Cinema	Cultural Club	Convenience	Non-Convenience	Mixed	Tea Stall	Hotel	Industry	Wholesale	Small Industry	Health Post	Hospital	Local	District	Local	District	Total	Telephone	Tap Water	Electricity	All-weather Road	
Kathmandu District																														
1. Kirtipur	II	1	1	1	X	1	3 (Both)		x	5	43	27	x	14	x	20	2	22	1	x	1	x	6	x	148	✓	✓	✓	✓	7400
2. Sankhu	II	1	x	1	x	1	3 (Both)		x	5	29	28	x	9	x	19	5	9	1	x	1	x	6	x	117	✓	✓	✓	✓	4750
3. Panga	III	2	x	x	x	x	x	x	x	x	5	7	33	9	x	1	x	2	1	x	x	x	x	x	60	✓	✓	✓	✓	5300
4. Pharping	III	2	x	1	x	1	x	x	x	3	18	15	x	6	x	7	x	10	1	x	1	x	1	x	71	✓	✓	✓	✓	1000
5. Thankot	III	1	1	x	x	1	x	x	x	3	18	16	x	9 (combined)		13	x	3	x	x	1	x	2	x	68	✓	✓	✓	✓	2300
6. Budhanilkantha	III	2	x	1	x	x	8 (Both)		x	3	17	5	x	12 (combined)		3	x	3	1	x	1	x	3	x	59	✓	✓	✓	✓	1050
7. Chalnakhel	IV	1	x	1	x	x	x	x	x	x	x	x	9	9	x	x	x	x	1	x	x	x	x	x	21	x	x	✓	✓	750
8. Gokarna	IV	2	x	1	x	x	x	x	x	x	17	2	2	14	x	x	1	x	1	x	x	x	x	x	40	✓	✓	✓	✓	750
9. Indrayani	IV	2	x	1	x	1	x	x	x	x	4	x	3	11	x	x	x	x	1	x	x	x	1	x	24	x	x	✓	✓	450
10. Tokha	IV	3	x	1	x	x	x	x	x	x	1	x	9	3	x	5	x	4	x	x	x	x	x	x	26	✓	✓	✓	x	4150
11. Balambu	IV	1	x	x	x	x	x	x	x	x	16	6	x	5 (combined)		6	x	6	1	x	1	x	1	1	44	✓	✓	✓	✓	1900
12. Thankot Checkpost	IV	1	x	1	x	x	1 (Both)		x	1	13	2	x	10 (combined)		2	x	1	x	x	x	2	5	x	39	✓	✓	✓	✓	1100
13. Sundarijal	IV	1	x	1	x	x	x	x	x	1	12	3	x	6 (combined)		2	x	2	1	x	1	1	4	x	35	✓	✓	✓	✓	450
14. Dharmasthali	IV	1	x	1	x	x	x	x	x	2	7	1	x	6 (combined)		2	x	3	1	x	1	x	2	x	27	x	✓	✓	x	1000
15. Sitapaila	IV	1	x	x	x	x	x	x	x	x	2	x	7	16	x	1	x	x	1	x	1	x	1	x	30	✓	✓	✓	✓	900

S.N. Centres	Order	Education		Post Office		Others					Retailing			Catering		Industry			Health Services		General Administration		District Administration			Infrastructure				Population
		School	Campus	Additional/mini	District	Bank	Personal	Professional	Cinema	Cultural Club	Convenience	Non-Convenience	Mixed	Tea Stall	Hotel	Industry	Wholesale	Small Industry	Health Post	Hospital	Local	District	Local	District	Total	Telephone	Tap Water	Electricity	All-weather Road	
Lalitpur District																														
16. Lubhu	II	2	1	1	x	1	6 (Both)		x	6	16	14	x	6 (combined)		59	2	4	1	x	1	x	2	x	122	✓	✓	✓	✓	580
17. Chapagaun	II	1	x	1	x	1	3 (Both)		x	4	32	51	x	20 (combined)		14	16	14	1	x	1	x	4	x	163	✓	✓	✓	✓	3950
18. Saibu	III	1	x	x	x	x	1	x	x	x	2	8	8	13	x	8	x	8	2	x	x	x	1	3	55	✓	✓	✓	✓	400
19. Thaiba	III	1	x	x	x	x	1 (Both)		x	4	12	9	x	12 (combined)		22	1	6	1	x	1	x	4	x	74	✓	✓	✓	✓	1400
20. Thecho	III	1	x	x	x	x	3 (Both)		x	1	19	5	x	6 (combined)		14	4	4	x	x	1	x	2	x	60	✓	✓	✓	✓	4250
21. Siddhipur	III	1	x	1	x	x	1 (Both)		x	1	12	4	x	3 (combined)		26	x	7	1	x	1	x	2	x	50	x	✓	✓	✓	5750
22. Harisiddhi	III	1	x	1	x	1	x	x	x	2	13	7	x	2 (combined)		13	x	6	1	x	1	x	2	x	50	✓	✓	✓	✓	4100
23. Godawari	IV	1	x	x	x	1	x	x	x	x	x	x	3	9	x	2	x	x	x	x	1	x	1	7	25	✓	✓	✓	✓	650
24. Gotikhel	IV	1	x	1	x	1	x	x	x	x	x	2	12	4	x	x	x	x	1	x	1	x	1	x	24	x	✓	x	x	250
25. Bungamati	IV	1	x	1	x	x	4 (Both)		x	4	13	2	x	3 (combined)		6	x	4	1	x	1	x	2	x	42	✓	✓	✓	✓	3200
26. Lele	IV	1	x	1	x	1	2 (Both)		x	3	3	x	x	3 (combined)		4	1	4	1	x	1	x	4	x	29	✓	✓	x	x	850
27. Sunakothi	IV	1	x	x	x	x	x	x	x	x	x	x	21	14	x	5	x	x	x	x	x	x	x	1	42	✓	✓	✓	✓	2850
Bhaktapur District																														
28. Thimi	I	2	x	1	x	1	11 *		x	5	77	61	x	18 (combined)		48	8	35	2	1	1	x	4	x	275	✓	✓	✓	✓	17050
29. Bode	IV	1	x	x	x	x	x	x	x	1	13	2	x	8 (combined)		10	x	1	1	x	1	x	x	x	38	✓	✓	✓	✓	3250
30. Gamcha	IV	1	x	1	x	1	x	x	x	1	10	3	x	2 (combined)		1	x	2	1	x	1	x	2	x	27	✓	✓	✓	x	350
31. Kharipati	IV	1	x	1	x	x	x	x	x	1	7	x	x	2 (combined)		1	x	3	1	x	1	x	3	x	20	✓	✓	✓	✓	200
32. Sanothimi	IV	2	1	1	x	x	x	x	x	1	12	2	x	5	4	2	x	2	x	x	x	x	x	1	33	✓	✓	✓	✓	1450

S.N. Centres	Order	Education		Post Office		Others					Retailing			Catering		Industry			Health Services		General Administration		District Administration			Infrastructure				Population
		School	Campus	Additional/mini	District	Bank	Personal	Professional	Cinema	Cultural Club	Convenience	Non-Convenience	Mixed	Tea Stall	Hotel	Industry	Wholesale	Small Industry	Health Post	Hospital	Local	District	Local	District	Total	Telephone	Tap Water	Electricity	All-weather Road	
Kabhrepalanchowk District																													
33. Banepa	I	4	1	1	x	2	7	2	1	3	71	86	86	32	8	17	24	61	1	1	1	x	7	3	418	✓	✓	✓	✓	12600
34. Panauti	II	2	x	1	x	1	x	1	x	1	21	42	74	37	2	15	3	17	x	x	1	x	3	x	221	✓	✓	✓	✓	2950
35. Dhulikhel	II	2	x	x	1	1	1	4	x	2	6	28	47	31	10	7	7	13	2	x	3	4	1	12	182	✓	✓	✓	✓	7200
36. Dolalghat	III	1	x	1	x	1	x	x	x	x	7	19	28	14	5	4	x	1	x	x	1	x	1	1	84	x	✓	✓	✓	500
37. Khopasi	III	1	x	1	x	x	x	x	x	1	4	11	27	24	x	1	x	12	1	x	x	1	1	1	87	✓	✓	✓	x	850
38. Lamidanda	III	x	x	x	x	x	x	x	x	x	3	6	18	14	x	4	x	7	x	x	x	x	x	x	52	x	✓	✓	✓	500
39. Dapcha	IV	1	x	1	x	1	x	x	x	x	8	6	20	13	x	3	x	x	1	x	x	x	x	x	54	x	✓	✓	x	350
40. Mangaltar	IV	2	x	1	x	1	1	x	x	1	x	x	22	7	x	x	2	12	2	x	1	x	x	x	52	x	x	x	x	150
41. Kuntabesi	IV	1	x	1	x	1	x	x	x	x	1	4	15	8	x	1	4	1	1	x	x	x	2	x	40	x	✓	✓	✓	500
42. Nala	IV	2	x	1	x	x	x	x	x	1	3	5	11	10	x	6	2	2	1	x	1	x	x	x	45	✓	✓	✓	✓	3050
43. Sanga	IV	2	x	1	x	x	1	x	x	1	1	2	14	11	x	2	x	3	x	x	1	x	1	x	40	✓	✓	✓	✓	1250
44. Tamaghat	IV	1	x	x	x	x	2	x	x	x	2	2	11	8	2	x	4	2	2	x	x	x	x	4	39	x	✓	✓	✓	350
Sindhupalchowk District																													
45. Barhabise	II	1	x	1	x	2	2	x	x	1	18	58	27	36	15	4	10	13	1	x	1	x	4	3	197	x	✓	✓	✓	1050
46. Chautara	II	1	1	x	1	2	3	2	x	3	20	33	34	30	9	9	2	20	x	1	x	5	x	20	196	✓	✓	✓	✓	1300
47. Lamosangu	III	1	x	1	x	1	x	x	x	x	6	16	17	16	x	2	x	10	x	x	1	x	x	x	71	x	✓	✓	✓	400
48. Balephi	IV	x	x	1	x	x	x	x	x	x	x	5	12	10	x	4	x	2	x	x	1	x	2	x	37	x	x	✓	✓	300
49. Jalbire	IV	1	x	1	x	x	x	x	x	x	x	4	5	5	x	2	x	4	1	x	x	x	2	x	25	x	✓	✓	x	350

S.N. Centres	Order	Education		Post Office		Others					Retailing			Catering		Industry			Health Services		General Administration		District Administration			Infrastructure				Population
		School	Campus	Additional/mini	District	Bank	Personal	Professional	Cinema	Cultural Club	Convenience	Non-Convenience	Mixed	Tea Stall	Hotel	Industry	Wholesale	Small Industry	Health Post	Hospital	Local	District	Local	District	Total	Telephone	Tap Water	Electricity	All-weather Road	
50. Khadichaur	IV	1	x	x	x	x	x	x	x	x	2	4	12	4	18	2	x	x	x	x	x	x	2	x	45	x	✓	✓	✓	100
51. Sangachowk	IV	1	x	x	x	x	x	x	x	x	x	1	10	8	x	x	x	x	x	x	x	x	1	x	21	x	x	✓	✓	600
52. Sipaghat	IV	x	x	x	x	x	x	x	x	x	x	9	25	15	2	x	7	2	x	x	1	x	2	x	63	x	x	x	x	300
53. Melamchi	IV	1	x	1	x	2	x	x	x	x	x	3	27	20	4	1	x	x	1	x	1	x	2	x	64	x	✓	✓	x	300
Dhading District																														
54. Dhading Besi	II	1	x	x	1	2	1	5	x	x	14	43	68	58	43	26	7	30	x	1	x	5	x	22	327	✓	✓	✓	✓	1200
55. Gajuri	III	1	x	1	x	2	1	x	x	x	4	11	29	8	6	x	3	9	2	x	2	x	9	x	88	x	✓	x	✓	850
56. Malekhu	IV	1	x	x	x	x	x	x	x	x	1	19	37	30	x	1	x	1	x	x	x	x	x	x	79	x	x	x	✓	400
57. Khanikhola	IV	1	x	1	x	1	x	x	x	x	x	7	8	13	35	x	x	2	1	x	x	x	2	x	71	x	✓	✓	✓	600
58. Adamghat	IV	X	x	x	x	x	x	x	x	x	x	2	12	10	x	x	x	x	x	x	x	x	x	x	24	x	x	x	✓	400
59. Baireni	IV	1	x	1	x	x	x	x	x	x	x	4	10	15	x	x	x	x	1	x	1	x	x	x	33	x	x	x	✓	350
60. Benighat	IV	1	x	x	x	x	x	x	x	x	6	5	10	4	3	x	x	10	1	x	1	x	3	x	44	x	✓	✓	✓	300
61. Dharke	IV	X	x	1	x	x	x	x	x	x	x	8	5	13	x	x	x	1	x	x	1	x	x	x	29	x	✓	✓	✓	250
62. Khahare	IV	1	x	1	x	1	x	x	x	x	1	2	5	25	x	x	x	4	1	x	x	x	x	x	41	x	✓	x	x	250
63. Mahadev Besi	IV	X	x	1	x	x	x	x	x	x	x	2	16	4	x	x	x	x	1	x	x	x	x	x	24	x	x	x	✓	250
64. Majhgaun	IV	X	x	1	x	x	x	x	x	x	x	1	2	12	x	x	x	9	1	x	1	x	1	x	26	x	✓	x	x	300
65. Todke	IV	1	x	x	x	x	x	x	x	x	1	1	7	10	x	2	x	2	x	x	1	x	2	x	27	x	✓	x	x	250
66. Rigne	IV	1	x	x	x	x	x	x	x	x	x	3	4	2	15	x	2	7	x	x	x	x	x	x	34	x	x	x	x	50

S.N. Centres	Order	Education		Post Office		Others					Retailing			Catering		Industry			Health Services		General Administration		District Administration			Infrastructure				Population
		School	Campus	Additional/mini	District	Bank	Personal	Professional	Cinema	Cultural Club	Convenience	Non-Convenience	Mixed	Tea Stall	Hotel	Industry	Wholesale	Small Industry	Health Post	Hospital	Local	District	Local	District	Total	Telephone	Tap Water	Electricity	All-weather Road	
Nuwakot District																														
67. Bidur	I	4	1	x	1	2	5	5	x	1	32	80	72	58	20	7	3	35	1	1	1	5	1	25	360	✓	✓	✓	✓	18900
68. Dhikure	III	1	x	x	x	1	x	1	x	x	1	9	13	9	5	7	x	1	x	x	1	x	1	x	50	x	✓	✓	✓	650
69. Betrawati	IV	1	x	1	x	x	x	x	x	x	5	13	6	8	4	9	1	3	x	x	1	x	3	x	55	x	✓	✓	✓	300
70. Chaughada	IV	1	x	1	x	1	x	x	x	x	3	x	3	7	3	1	x	2	x	x	x	x	1	x	23	x	✓	✓	✓	500
71. Deurali	IV	1	x	1	x	1	x	x	x	x	x	x	4	6	x	3	x	2	x	x	1	x	3	x	22	x	✓	✓	x	400
72. Kharanitar	IV	1	x	1	x	1	x	x	x	x	3	1	5	3	x	6	x	2	1	x	1	x	3	x	28	x	✓	✓	x	850
73. Samundratar	IV	1	x	1	x	1	x	x	x	x	1	2	7	6	x	7	1	4	1	x	1	x	3	x	35	x	✓	x	x	250
74. Ranipauwa	IV	x	x	1	x	1	x	x	x	1	4	7	11	7	6	1	x	4	x	x	x	1	1	2	48	x	✓	✓	✓	500
Rasuwa District																														
75. Dhunche	III	1	x	x	1	2	x	x	x	1	8	7	17	21	15	3	1	5	1	1	x	12	x	18	114	x	✓	✓	✓	400
76. Kalikasthan	IV	1	x	1	x	x	x	x	x	x	x	x	9	10	3	x	x	1	1	x	1	x	6	x	33	x	✓	✓	✓	150
77. Syaphrubesi	IV	1	x	x	x	x	x	x	x	x	x	x	3	5	7	x	x	x	1	x	1	x	3	x	21	x	✓	x	✓	150

Annex C

Population Size of Market Centre

District	Centres		Population
Kathmandu	1. Kirtipur	II	7,400
	2. Sankhu	II	4,750
	3. Panga	III	5,300
	4. Pharping	III	1,00
	5. Thankot	III	2,300
	6. Budhanilkantha	III	1,050
	7. Chalnakhel	IV	750
	8. Gokarna	IV	1,050
	9. Indrayani		450
	10. Tokha	IV	4,150
	11. Balambu	IV	1,900
	12. Thankot Checkpost	IV	1,000
	13. Sundarijal	IV	450
	14. Dharmasthali	IV	900
Lalitpur	15. Lubu	II	5,800
	16. Chapagaun	II	3,950
	17. Saibu	III	400
	18. Thaiba	III	400
	19. Thecho	III	1,400
	20. Sidhipur	III	4,250
	21. Harishidhi	III	5,750
	22. Godavari	IV	650
	23. Gothikhel	IV	250
	24. Bungmati	IV	3,200
	25. Lele	IV	850
	26. Sunakothi	IV	600
Bhaktapur	27. Thimi	I	17,050
	28. Bode	IV	3,250
	29. Gamcha	IV	350
	30. Kharipati	IV	200
	31. Sanothimi	IV	1,450
Kavrepalanchowk	32. Banepa	I	12,600
	33. Panauti	II	2,950
	34. Dhulikhel	II	9,650
	35. Khopasi	III	850
	36. Dolalghat	III	500
	37. Lamidanda	III	500
	38. Dapcha	IV	350
	39. Mangaltar	IV	150
	40. Kuntabesi	IV	500
	41. Nala	IV	3,050
	42. Sanga	IV	1,250
	43. Tamaghat	IV	350

Annex C (Contd.)

District	Centres		Population
Sindhupalchowk	44. Barhabise	II	1,050
	45. Chautara	II	1,300
	46. Lamosangu	III	400
	47. Balephi	IV	300
	48. Jalbire	IV	350
	49. Khadichaur	IV	100
	50. Sangachowk	IV	600
	51. Sipaghat	IV	300
Dhading	52. Dhading Besi	II	1,200
	53. Gajuri	III	850
	54. Malekhu	IV	400
	55. Khanikhola	IV	600
	56. Adamghat	IV	400
	57. Baireni	IV	350
	58. Benighat	IV	300
	59. Dharke	IV	250
	60. Mahadev Besi	IV	250
	61. Majhgaun	IV	600
	62. Todke	IV	250
	63. Rigne	IV	50
	64. Khahare	IV	250
Nuwakot	65. Bidur	I	18,850
	66. Dhikure	III	650
	67. Betrawati	IV	400
	68. Chaughada	IV	500
	69. Deurali	IV	400
	70. Kharanitar	IV	850
	71. Ranipauwa	IV	500
	72. Samundratar	IV	400
Rasuwa	73. Dhunche	III	400
	74. Kalikasthan	IV	150
	75. Betrawati	IV	150

Annex D

Market Centres with Secondary School Education and Health Services

District	Centres	Order	No. of Schools	No. of Health Services
Kathmandu	1. Kirtipur	II	1	1
	2. Sankhu	II	1	1
	3. Panga	III	2	1
	4. Pharping	III	2	1
	5. Thankot	III	1	-
	6. Budhanilkantha	III	2	1
	7. Chalnakhel	IV	1	1
	8. Gokarna	IV	2	1
	9. Indrayani	IV	2	1
	10. Tokha	IV	3	-
	11. Balambu	IV	1	1
	12. Thankot Checkpost	IV	1	-
	13. Sundarijal	IV	1	1
	14. Sitapaila	IV	1	1
	15. Dharmasthali	IV	1	1
Lalitpur	16. Lubhu	II	2	1
	17. Chapagaun	II	1	1
	18. Saibu	III	1	2
	19. Thaiba	III	1	1
	20. Thecho	III	1	1
	21. Siddhipur	III	1	1
	22. Harisiddhi	III	1	1
	23. Godawari	IV	1	-
	24. Gotikhel	IV	1	1
	25. Bungamati	IV	1	1
	26. Lele	IV	1	1
	27. Sunakothi	IV	1	-
Bhaktapur	28. Thimi	I	2	3
	29. Bode	IV	1	1
	30. Gamcha	IV	1	1
	31. Kharipati	IV	1	1
	32. Sanothimi	IV	3	-
Kabhrepalanchowk	33. Banepa	I	4	2
	34. Dhulikhel	II	2	2
	35. Panauti	II	2	-
	36. Khopasi	III	1	1
	37. Dolalghat	III	1	-
	38. Lamidanda	III	-	-
	39. Dapcha	IV	1	1
	40. Mangaltar	IV	2	2
	41. Kuntabesi	IV	1	1
	42. Tamaghat	IV	1	2
	43. Nala	IV	2	1
	44. Sanga	IV	2	-

District	Centres	Order	No. of Schools	No. of Health Services
Sindhupalchowk	45. Chautara	II	1	1
	46. Barhabise	II	1	1
	47. Lamosangu	III	1	-
	48. Balephi	IV	-	-
	49. Jalbire	IV	1	1
	50. Melamchi	IV	1	1
	51. Khadichaur	IV	1	-
	52. Sangachowk	IV	-	-
Dhading	53. Dhading Besi	II	1	1
	54. Gajuri	III	1	2
	55. Adamghat	IV	-	-
	56. Baireni	IV	1	1
	57. Benighat	IV	1	1
	58. Dharke	IV	-	-
	59. Khahare	IV	1	1
	60. Mahadev Besi	IV	-	1
	61. Majhgaun	IV	-	1
	62. Khanikhola	IV	1	1
	63. Todke	IV	1	-
Nuwakot	64. Bidur	I	4	2
	65. Dhikure	III	1	-
	66. Betrawati	IV	1	-
	67. Chaughada	IV	1	-
	68. Deurali	IV	1	-
	69. Kharanitar	IV	1	1
	70. Ranipauwa	IV	-	-
	71. Samundratar	IV	1	1
Rasuwa	72. Dhunche	III	1	1
	73. Kalikasthan	IV	1	1
	74. Syaphrubesi	IV	1	1

Annex E

Market Centres with Extension Services

District/Centres	Order	Extension Services							
		Agriculture			Cottage	Industry		Livestock	
		Technical	Fertiliser	Marketing	Technical	Training	Marketing	Technical	Grazing
Kathmandu									
Kirtipur	II	/	/	-	-	-	-	-	-
Sankhu	II	/	/	-	-	-	-	-	-
Pharping	III	/	/	-	-	-	-	-	-
Budhanilakantha	III	-	/	-	-	-	-	-	-
Gokarna	IV	-	/	-	-	-	-	-	-
Sitapaila	IV	/	-	-	-	-	-	-	-
Indrayani	IV	/	/	-	-	-	-	-	-
Sundarijal	IV	/	/	-	-	-	-	-	-
Dharmasthali	IV	-	/	-	-	-	-	-	-
Tokha	IV	-	/	-	-	-	-	-	-
Lalitpur									
Lubhu	II	/	-	-	-	-	-	-	-
Chapagaun	II	/	-	-	-	-	-	-	-
Thaiba	III	/	-	-	-	-	-	-	-
Thecho	III	/	-	-	-	-	-	-	-
Siddhipur	III	/	-	-	-	-	-	-	-
Bungamati	IV	/	-	-	-	-	-	-	-
Lele	IV	/	-	-	-	-	-	-	-
Godawari	IV	/	-	-	-	-	-	-	-
Saibu	III	-	-	-	-	-	-	-	-
Sunakothi	III	-	-	-	-	-	-	-	-
Gotikhel	IV	-	-	-	-	-	-	-	-
Bhaktapur									
Thimi	I	/	/	-	-	-	-	-	-
Gamcha	IV	/	/	-	-	-	-	-	-
Kharipati	IV	/	-	-	-	-	-	-	-
Sanothimi	IV	-	-	-	-	-	-	-	-

District/Centres	Order	Extension Services							
		Agriculture			Cottage Industry			Livestock	
		Technical	Fertiliser	Marketing	Technical	Training	Marketing	Technical	Grazing
Kabhrepalanchowk									
Banepa	I	/	/	-	/	-	/	-	-
Dhulikhel	II	/	/	-	-	-	-	-	-
Panauti	II	-	/	-	-	-	-	-	-
Khopasi	III	/	/	-	-	-	-	-	-
Lamidanda	III	/	-	-	-	-	-	-	-
Kuntabesi	IV	/	/	-	-	-	-	-	-
Tamaghat	IV	/	-	-	-	-	-	-	-
Sanga	IV	-	/	-	-	-	-	-	-
Sindhupalchowk									
Chautara	II	/	/	-	/	/	-	/	-
Barhabise	II	-	/	-	-	-	-	/	-
Lamosangu	III	-	/	-	-	-	-	-	-
Dolalghat	III	-	-	/		-	-	-	-
Jalbire	IV	-	/	-	-	-	-		-
Sipaghat	IV	-	/	-	-	-	-	/	-
Balephi	IV	/	/	-	-	-	-	-	-
Dhading									
Dhading Besi	II	/	/	/	-	-	-	-	-
Gajuri	III	/	/	-	-	-	-	/	-
Benighat	IV	/	-	-	-	-	-	/	-
Khanikhola	IV	/	-	-	-	-	-	-	-
Majhgaun	IV	-	/	-	-	-	-	-	-
Todke	IV	-	-	-	-	-	-	-	/
Nuwakot									
Bidur	I	/	/	/	/	/	-	-	-
Dhikure	III	-	/	-	-	-	-	-	-
Betrawati	IV	/	-	-	-	-	-	-	-
Chaughada	IV	-	/	-	-	-	-	-	-
Ranipauwa	IV	-	/	-	-	-	-	-	-
Samundratar	IV	/	/	-	-	-	-	-	-
Kharanitar	IV	/	-	-	-	-	-	-	-
Deurali	IV	/	/	-	-	-	-	-	-
Rasuwa									
Dhunche	III	/	/	/	/	/	-	/	-
Kalikasthan	III	-	-	-	-	-	-	/	-
Syaphrubesi	III	/	-	-	-	-	-	/	-

Annex F
Functional Classes of Small Towns and Market Centres

A. Commercial Centres (C)
   1. Banepa (I)
   2. Panauti (II)
   3. Dolalghat (III)
   4. Khopasi (III)
   5. Barhabise (II)
   6. Lamosangu (II)
   7. Sipaghat (IV)
   8. Todke (IV)
   9. Betrawati (IV)
   10. Dhikure (III)
   11. Chapagaun (II)

B. Commercial/Administrative (CA)
   1. Bidur

C. Administrative/Commercial (AC)
   1. Dhulikhel (II)
   2. Dhading Besi (II)
   3. Chautara (II)

D. Industrial/Commercial (IC)
   1. Thimi (I)
   2. Kirtipur (II)

E. Industrial/Service (IS)
   1. Lubhu (II)
   2. Thaiba (III)
   3. Thecho (III)
   4. Siddhipur (III)
   5. Harisiddhi

F. Administrative/Service (CS)
   1. Dhunche (III)

G. Commercial/Service (CS)
   1. Panga (III)
   2. Pharping (III)
   3. Mangaltar (IV)
   4. Melamchi (III)
   5. Gajuri (III)
   6. Mahadev Besi (IV) and
   7. Samundratar (IV)

H. Source/Catering (SC)
   1. Tamaghat (IV)
   2. Sangachowk (IV)
   3. Khahare (IV)

I. Commercial/Catering (CCa)
   1. Ranipauwa (IV)
   2. Lamidanda (III)

J. Industrial/Catering (ICa)
   1. Thankot (III)
   2. Saibu (III)

K. Services (S)
   1. Chanakhel (IV)
   2. Gokarna (IV)
   3. Indrayani (IV)
   4. Sitapaila (IV)
   5. Tokha (IV)
   6. Balambu
   7. Sundarijal (IV)
   8. Dharmasthali (IV)
   9. Godawari (IV)
   10. Gotikhel (IV)
   11. Bungamati (IV)
   12. Lele (IV)
   13. Bode (IV)
   14. Gamcha (IV)
   15. Kharipati (IV)
   16. Sanothimi (IV)
   17. Dapcha (IV)
   18. Kuntabesi (IV)
   19. Nala (IV)
   20. Jalbire (IV)
   21. Besighat (IV)
   22. Deurali (IV)
   23. Kharanitar (IV)
   24. Kalikasthan (IV)
   25. Syapru Besi (IV)

L. Catering (Ca)
   1. Thankot Checkpost (IV)
   2. Budhanilkantha (IV)
   3. Sunakothi (IV)
   4. Sanga (IV)
   5. Balephi (IV)
   6. Khadichaur (IV)
   7. Adamghat (IV)
   8. Baireni (IV)
   9. Dharke (IV)
   10. Majhgaun (IV)
   11. Malekhu (IV)
   12. Khanikhola (IV)
   13. Rigne (IV)
   14. Chaughada (IV)

Annex G
Recording Schedule (Functional Categories)

District .....
Market .....

1. Social Services

   A. Education
      a. Lower Secondary School
      b. Secondary School
      c. Technical School
      d. Certificate Level Campus
      e. Graduate Level Campus
      f. Library

   B. Health
      a. Ayurvedic Clinic
      b. Health Post
      c. Health Centre
      d. Hospital
      e. Nursing Home

2. Extension Services

   A. Agricultural Extension Services
      a. Technical Services
      b. Fertiliser Supply
      c. Agricultural Tools/Equipment Supply
      d. Research Lab
      e. Marketing Agency (Formal)

   B. Industrial Extension Services
      a. Technical Services (other than training)
      b. Training
      c. Tools Supply
      d. Marketing Agency (Formal)

3. Infrastructure

   A. Transport

      a. Road link with the national capital
         i) All-weather ii) Fair Weather

      b. Road link with the district headquarters/important towns
         i) All-weather ii) Fair Weather

      c. Local Roads
         i) All-weather ii) Fair Weather

      d. Airports

      e. Ropeways

   B. Communications
      a. Post Office
         i) Additional ii) Mini iii) District

      b. Wireless Station

      c. Telephone
         i) Public ii) Private

   C. Power & Water
      a. Electricity
      b. Tap Water Supply

   D. Agriculture
      a. Irrigation Project
      b. Agriculture Project
      c. Godown

4. Financial Services

   A. Banking Services
      a. Commercial Bank
      b. Agricultural Development Bank

   B. Credit Agency
      a. Institutionalised Agency (small farmer development, other)
      b. Private Money Lenders

5. Administrative Services

   A. General Administration (Law & others)
      a. Inter-district Level
      b. Intra-district Level
      c. Local Level

   B. Development

   C. Judicial Administration
      a. Regional
      b. District Level

6. Trade

   A. Wholesale
      a. Foodgrains
      b. Other Convenience Goods
      c. Non-convenience Goods
      d. Mixed

B. Retailing
   a. Foodgrains
   b. Other Convenience Goods
   c. Non-convenience Goods
   d. Mixed

C. Catering
   a. Tea Stalls
   b. Traditional Restaurants
   c. Modern Restaurants
   d. Hotel/Lodge

7. Industry

A. Craft/Cottage Industry (Registered only)
   a. Tourist
   b. Non-tourist

   (Information on non-registered establishments should be obtained and this should be recorded here separately)

B. Small-scale (Rs 500,000 to 10,000,000)
   a. Agro-based
   b. Forest-based
   c. Others (to be specified)
   .....
   .....

C. Large-scale (More than Rs 1,000,000)
   a. Agro-based
   b. Forest-based
   c. Others (to be specified)
   .....
   .....

8. Personal and Professional Services and Service Industries

A. Personal
   a. Barber
   b. Laundry
   c. Others (specify)
   .....
   .....

   Note:- Number to be recorded only when the service concerned has a visible establishment

B. Professional
   a. Physician
   b. Surgeon
   c. Dentist
   d. Lawyer
   e. Others (specify)

   Note:- Number to be recorded only when the service concerned has a visible establishment

C. Service Industries
   a. Tailor
   b. Goldsmith
   c. Ironsmith
   d. Others (specify)

9. Entertainment

A. Established Units
   a. Cinema Hall
   b. Theatre Hall

B. Clubs
   a. Dance Clubs
   b. Cultural Clubs
   c. Others (specify)

   Nine functional types, 24 sub-types, and categories.

Questionnaire A

(Wholesale Retail Establishments)

District .....
Settlement.....
Units ..... Wholesale/Retail
Specific category .....

1. Year of establishment of the unit.....

2. Source of trading goods
   (place names to be recorded in order of importance).....

3. Mode of transport used for obtaining trading goods .....

4. Market area:
   a. Source of customers (place names in order of importance).....
   b. Places for disposal of trading goods (place names in order of imporance) .....

5. Mode of transport used:
   a. By customers.....
   b. For disposal of trading goods.....

6. Change, if any, in

   a. Source of customers.....
   b. Places used for disposal of trading goods and .....
   c. Mode of transport used in connection with a & b during the last five years.....

Questionnaire B

(Industrial establishments)

District.....
Settlement.....
Specific industrial category.....

1. Year of establishment .....
2. Number of labourers employed .....
3. Source of raw materials
4. Market area
5. Mode of transport used for obtaining raw materials.....
6. Mode of transport used for sending manufactured products.....
7. Source of labourers.....
8. Change, if any, in
   a. The sources of raw materials .....
   b. Market area.....
   c. Source of labourers and .....
   d. Mode of transport used in connection with a and b during the last five years.....

Questionnaire C

(Office establishments related to development administration)

District.....
Settlement.....
Specific category.....

1. Year of establishment.....
2. Numbers of employees.....
   Technical-officer level.....
   Non-officer level.....
   Non-technical-officer level.....
   Non-officer level.....
3. Type of services provided.....
4. Service area.....
5. Means used for providing services.....
6. Change, if any, in
   a. Types of services .....
   b. Service area.....
   c. Means used for providing services during the last five years.....

Questionnaire D

(Professional services, service industry, and entertainment [Cinema hall only])

District .....
Settlement .....
Professional unit/Service industry/Cinema hall.....

Specific category.....

1. Year of establishment.....
2. Source of customers.....
3. Mode of transport used by customers .....
4. Source of equipment/tools/machinery .....
5. Permanent residences of professionals in case professionals working in professional establishments are non-local .....
6. Change, if any, in source of customers for supply of equipment/tools during the last five years.....

REFERENCES

Central Bureau of Statistics (CBS), HMG, 1956. *Census Report of 1952-54*. Kathmandu: HMG.

Central Bureau of Statistics (CBS), HMG, 1991. "*Preliminary Census Report of 1991*. Kathmandu: HMG.

Centre for Economic Development and Administration (CEDA), 1989. *Inter and Inter-regional Flow Study of Kathmandu, Nepal*. Kathmandu: CEDA.

CERDA, 1991. *Decentralised Planning Policy Framework: A Report*. Kathmandu: National Planning Commission.

Election Commission, 1991. *Voters' Lists*. Kathmandu: HMG.

Geography Instruction Committee, 1984. *Role of Small Urban Centres in National Development in Nepal*. Kirtipur: T.U.

Gormsen, E., 1985. "The Role of Market Places in Developing Countries". In ICRIS/SAT, *Agricultural Markets in the Semi-arid Tropics*, pp. 121-129. Patancheru: International Crops Research Institute.

HEA, PPX, and CEMAT, 1991. *Kathmandu Valley Urban Development Plans and Progammes: Small Towns and Villages Development Report*. Kathmandu: DHUD.

International Centre for Integrated Mountain Development (ICIMOD), 1986. *The Planned Urbanisation Workshop* (collection of papers). Kathmandu: ICIMOD.

Karki, M.K., 1989. *A Study of Distribution of Location Arrangement of Retail Shops in Banepa*. M.A. dissertation, T.U. (unpublished).

Mathur, O.P., 1982. "Role of Small Cities in National Development Re-examined". In Mathur (ed.), *Small Cities and National Development*. Nagoya: UNCRID.

MSTP, 1989. *Infrastructure Data Base For Urban Development*. Kathmandu: Ministry of Housing and Physical Planning.

MSTP, 1989. *Banepa: Structure Plan*. Kathmandu: Department of Housing and Urban Development.

MSTP, 1989. *Bidur: Structure Plan*. Kathmandu: Department of Housing and Urban Development.

MSUD, 1990. *Urban Infrastructure Service Delivery in Nepal: Towards A Model Framework*. Kathmandu: Department of Housing and Urban Development.

MSUD, 1990. *Structure Plan Summaries of Municipalities in Nepal*. Kathmandu: Department of Housing and Urban Planning.

MSUD, 1991. *The Urban Contribution to National Economic Growth in Nepal*. Kathmandu: Department of Housing and Urban Development.

MSUD, 1990. *Dhulikhel: Structure Plan*. Kathmandu: Department of Housing and Urban Development.

Muller, U., 1981. *Thimi: Social and Economic Studies on a Newar Settlement in the Kathmandu Valley*. Giessen: Liebug University.

National Planning Commission, 1990. *Regional Development Master Plan*. Kathmandu: NPC.

National Planning Commission, 1990. *Programme for Fulfillment of Basic Needs (1985-2000)*. Kathmandu: NPC.

New Era, 1986. Development of Small Towns in Gandaki Growth Asia: Central Nepal. A report submitted to IDRC.

PADCO, 1990. *Nepal: Urban Development Policy Study*. Kathmandu: MSUD.

Physical Planning Department, 1961. *The Physical Development Plan for the Kathmandu Valley*. Kathmandu: HMG.

Rondinelli, D.A., 1983. "Towns and Small Cities in Developing Countries". In *The Geographical Review*, 73 (4): 379-395

Rondinelli, D.A., 1990. "Market Towns and Urban Development in Nepal". In Rondinelli (ed.), *Proceedings: Role of Market Towns In National Economic Development*, pp.16-34. Kathmandu: USAID.

Sharma, P., 1989. *Urbanisation in Nepal*. Papers of the East-West Population Institute, No. 110. Honolulu: East-West Centre.

Sharma, P., 1990. "Market Towns and Economic Development". In Rondinelli (ed.), *Proceedings: Role of Market Towns in National Economic Development*, pp. 1-15. Kathmandu: USAID.

Shrestha, U.S., 1991. *Land Use Changes in Kirtipur (1954-1989)*. M.A. thesis, T.U.

Shrestha, C.B. et al., 1986. *The Historic Cities of Asia*. Kathmandu: CNAS.

Shrestha, C.B., 1968. "Changing Pattern of Sphere of Influence of Bhaktapur". In *The Himalaya Review*, Special Issue, pp. 42-51.

Shrestha, C.B. and Malla, U.B., 1991. "Urban Poor and Basic Infrastructure Services in Nepal." Paper submitted at the Regional Seminar on the Urban Poor and Basic Infrastructure Services in Asia and the Pacific, Manila.

Shrestha, C.B., 1973/74. "The System of Central Places in Arniko Rajmarga Area of Nepal." In *The Himalayan Review*, Vol. 5/6, pp. 19-39.

Shrestha, C.B., 1987. "Structure of Rural Market Centres in the Kathmandu Valley". In *The Journal of Development and Administrative Studies*, Vol. 9, No. 1.

Shrestha, C.B., 1980. *Hierarchy of Urban Centres in the Arniko Rajmarga Area.* Ph.D. dissertation, T.U. (unpublished).

Suspension Bridge Division/SATA, 1989. *Central Service Map*. Kathmandu: SATA.

Suwal, R. et al., 1979. *Kathmandu Valley Town Planning and its Impact.* Kathmandu: Centre for Economic Development and Administration.

Tuladhar, R., 1990. "Case Study Profiles of Three Market Towns in Nepal". In Rondinelli (ed.), *Proceedings: Role of Market Towns in National Economic Development*, pp. 37-63. Kathmandu: USIS.

Wanmali, S., 1985. "Service Provision and Rural Development in India". In *Research Report No. 37*. Washington: International Food Policy Research Institute.

ICIMOD is the first international centre in the field of mountain development. Founded out of widespread recognition of environmental degradation of mountain habitats and the increasing poverty of mountain communities, ICIMOD is concerned with the search for more effective development responses to promote the sustained well being of mountain people.

The Centre was established in 1983 and commenced professional activities in 1984. Though international in its concerns, ICIMOD focusses on the specific, complex, and practical problems of the Hindu Kush-Himalayan Region which covers all or part of eight Sovereign States.

ICIMOD serves as a multidisciplinary documentation centre on integrated mountain development; a focal point for the mobilisation, conduct, and coordination of applied and problem-solving research activities; a focal point for training on integrated mountain development, with special emphasis on the assessment of training needs and the development of relevant training materials based directly on field case studies; and a consultative centre providing expert services on mountain development and resource management.

Integrated area development and its implementation offers a systematic approach to the promotion of mountain development. Development programmes must find practical methods that reconcile the conflicts between increased productivity and environmental sustainability. In order to promote the economic and environmental development of mountain areas, ICIMOD has formulated the Area Development Planning and Implementation Programme with the objectives of integrating the lessons learned from the different programmes of ICIMOD and applying them.

Director General: Mr. Egbert Pelinck

International Centre for Integrated Mountain Development

G.P.O Box 3226, Kathmandu, Nepal

Telex : 2439 ICIMOD NP

Cable : ICIMOD NEPAL

Telephone : (977-1) 525313

Fax : (977-1) 524509