3 SPATIO-ECONOMIC PROFILE, IDENTIFICATION AND ASSESSMENT OF MARKET TOWNS

Introduction

The analysis of market towns requires an understanding of the macro-economic and spatial framework of the districts under study. Therefore, the spatio-economic profiles of the districts under study were prepared on the basis of secondary data and later complemented by field-level information. These profiles provide the socioeconomic, demographic, and developmental parameters and context for the development of market towns in the district and include an analysis of the nature and trends in population and employment, the dynamics of the production sectors, the nature and type of infrastructure, and factors contributing to the spatio-economic development of the district and locational identification of market towns. The basic features of the spatio-economic profiles of the districts are (Dechang County, China; Tehri Garhwal, India; Dang District, Nepal; Ghizar District, Pakistan) briefly summarised below and a comparative perspective is provided at the end.

Dechang County, Sichuan Province, China

Spatio-economic Profile

Dechang is one of the seventeen counties of Liangshan Yi Autonomous Prefecture of Sichuan Province. Geographically, it is located between latitudes 27°05' and 27°36'N and longitudes 101°54' and 102°23'E. It has an area of 2,288sq.km. The county is basically mountainous and is comprised of steep mountain slopes and river valleys (Anning and Yalong). About 92 per cent of the total area is mountainous. More than 66 per cent is comprised of steep slopes. Only nine per cent of the total area is under cultivation. Forests occupy more than 63 per cent of the total area, followed by meadows (17%) and shrubs (8%). The county is drained by the Yalong and Anning rivers. This area is dominated by the summer monsoon. The annual precipitation is 1,170mm. More than 90 per cent of the total rain occurs in five months (June - September). The average annual temperature is about 17°C. The high diurnal range of temperature, along with frequent sunny periods have made this area favourable for the production of good quality crops.

The mineral resources of the county are silica, iron ore, kaolin, limestone, marble, and granite. The reserves are too small to support big industries, but they can be used by rural industries.

The population of the county in 1993 was 170,504, of which 87,002 were males and 83,502 were females. The average annual growth rate of population between 1982 and 1990 was 1.53 per cent, and the rate for 1993 was only 1.02 per cent. The population density was about 75 persons/km^2. However, the density of population decreased with the increase in altitude, from about 150 persons/km^2 in the river valleys, to 80 persons/km^2 in the middle and low mountain areas, and less than 30 persons/km^2 in high mountain areas. The percentage of people with non-agricultural or urban[1] IDs was about 10, whereas the percentage of people living in county towns was 7.5. About 64 per cent of the total population above six years of age were literate. More than 85 per cent of the economically-active population were engaged in agriculture. Nearly seven per cent were engaged in the manufacturing and transportation sectors. Only a few youths migrated outside the county to find temporary jobs, and they returned for the Spring Festival every year.

Agriculture is the dominant economic activity of the county in the valley and middle mountains, whereas the main economic activity in the high mountains is animal husbandry. Slash and burn cultivation is also practised in some areas in the high mountains.

The rural economic structure has been changing since the 1970s, particularly after the introduction of economic reforms. Before the 1970s, cereals

1 In China the urban population is provided with non-agricultural identity cards which provide them with access to housing, subsidised rations, and similar facilities.

were the main agricultural crops. During the late 1970s, the sugar industry was established in the county. As a result, sugarcane became the main crop. With the continuation of reforms in China, animal husbandry, fisheries, and sideline production have become increasingly important sources of family income. In 1979, the crop contribution in the total output value of agriculture was about 70 per cent, followed by livestock (16%), sideline production (12%), and forestry (2%). In 1992, the share of crops in the total output value of agriculture was only 51 per cent, whereas the share of livestock, forestry, and fisheries increased to 36 per cent, six per cent and 0.4 per cent respectively. The share of cash crops in total cultivated land increased from about five per cent in 1979 to 26 per cent in 1992. The principal cash crops grown in the county are sugarcane, tobacco, tea, mulberries (silkworms), and vegetables in the lower valleys and fruits in middle mountain areas. The main grains produced in this area are rice and wheat in the valleys and maize, yams, potatoes, and cassava in the low and middle mountain areas. Vegetables are grown between January and February in the valleys. At this time, other areas of Sichuan Province and most parts of China cannot grow vegetables due to very low temperatures. These early vegetables have a large market and bring good economic returns to the farmers. As a result, the production of vegetables has been increasing. By 1990, vegetables accounted for about nine per cent of the total cropped area and contributed about 12 per cent of the total output value of crops in the county. The area is suitable for the production of high quality fruits and products such as apples, honey, peaches, oranges, and so on.

Agricultural products, mainly grain, mulberries, silkworms, and tobacco are purchased by marketing cooperatives managed by the government through fixed or mobile purchasing stations. Sugarcane is purchased directly from the farmers by the factory. Vegetables and high quality fruits are purchased by commercial enterprises and dealers coming from other areas. Since the main sources of local government income are taxes and interest from state-run enterprises, it has encouraged farmers to cultivate sugarcane.

Off-farm economic activities have been increasing in the county. In 1990, the contribution of non-agricultural economic activities was less (99.05 million *yuan*) than the total output from agriculture (131.66 million *yuan*)[2]. In 1993, the contribution of industry had exceeded (159.18 million *yuan*) the total output of agriculture (158.00 million *yuan*). The principal industrial products are bricks, cement, marble, kaolin, iron, electricity, wood, paper, wine, sugar, and matches.

The primary source of rural family income was still agriculture, which accounted for about 49 per cent of the total income, followed by animal husbandry (34%), off-farm activities (16%), fishing, and forestry (1%). The per capita income of farmers increased greatly and reached 551 *yuan* in 1992.

The main export items in the county are sugar, silk cocoons, iron, paper, fruits, and vegetables. The export of sugar and silk cocoons is controlled by the government. But other goods are exported by non-state run agencies and individuals. The imports consist of manufactured and construction goods and agricultural inputs.

National Highway Number 108 and the Chengdu-Kunming Railway pass through Dechang County. There are seven railway stations in the county. Out of the seven stations, three stations are used only for cargo. Running parallel to the railroad, Highway 108 passes through the Anning River Valley. The county has a local road network of 365km and is connected to Highway 108. The transport conditions in mountainous areas are rather poor. Dechang County has five medium- and small-sized hydropower stations which generate electricity worth 123.62 million kWh. Post and telecommunication services are poor in many areas. There are seven small post offices and 25 mailboxes in the valley areas of the Anning River and 20 temporary post stations in the mountainous areas.

The county has a total of 23 townships.[3] All these have electricity, marketing cooperatives, hospitals, and primary schools. Twenty townships are linked to the highway, seven have railway stations, 15 have credit cooperatives, 10 have markets, five have grain shops, and only three have post offices.

There are branches of the Industrial and Commercial Bank, the Construction Bank, and the Agricultural Bank managed by the China People's Bank. The Agricultural Bank basically provides

2. In 1993, when this study took place, there were 5.76 *yuan* to the US dollar
3 A township is a unit of local government.

loans to farmers needing investments to increase the scale of production.

According to the 1990 Census, there were 337 villages in Dechang County. Out of these, 64 settlements had a population of more than 1,000 and only 10 settlements had a population of more than 2,000. The big settlements are confined to the Anning and Cida valleys (Map 2). The aboriginal *Yi* people and other minority groups inhabit the middle and high mountains, whereas the im-migrant *Han* people live in the fertile river valleys.

Identification and Assessment of Market Towns

The spatio-economic profile provided the background for the identification of market towns and the assessment of market towns with the most potential on the basis of a number of criteria.

In the Dechang County context, a market town is defined as **a centre of services, culture, and communication with the commercial function of collecting and distributing local products and manufactured goods.** The market towns differ from common settlements in that these are formally announced by government notification.

According to the local chronicles, ten market towns existed in Dechang County in the earlier stage of the Quing Dynasty, about 250 years ago. They are Dezhou, Yonglang, Leyao, Mali, Ayue, Badong, Kuanyu, Cida, Xiaogao, and Jinchaun (Map 3). These market towns are in very advantageous locations and are still the centres of many services such as trade and commerce, health, education, communications, recreation, and finance. They are also characterised by the observation of a *market day* and a fixed street pattern and layout, unlike the rural settlements.

A Multiple-hierarchy Assessment Model was developed in order to quantitatively identify market towns with potential among these ten formally announced market towns in the county for further detailed investigation. The main factors considered in the model were: 1) the population, including its size and level of off-farm activity; 2) accessibility, which includes the quality of roads, post and telecommunication services, and planned road linkages; 3) economic base, which includes agriculture, other resources, financial ability, existing infrastructure, and historical importance; 4) function of market towns, including the number of commercial units, volume of trade and their trends; 5) hinterland, which includes size, centrality, and ability to attract trade; and 6) other factors, which include site and situation, natural conditions, pollution, and environmental hazards, which limit the growth of market towns.

First of all, the experts and key informants from different fields such as agriculture, town construction, regional planning, financial administration, market administration, transport and communications, and employment were interviewed to compare and judge objectively the factors listed above and to gain an idea of the relative importance quantitatively. Weightage values of the relative importance for all factors were calculated for use in the mathematical model (Annex 2). It was found that the function of the market towns, i.e., the number of commercial units, volume of trade, and their growth trends were the most important assessment criteria. The weightage value of these factors was 0.291. The economic base was found to be the second important factor with a weightage value of 0.213, whereas population, accessibility, and hinterland were assessed to be of relatively equal importance with a weightage value of 0.148 each. Other factors were given the lowest weightage value of only 0.052.

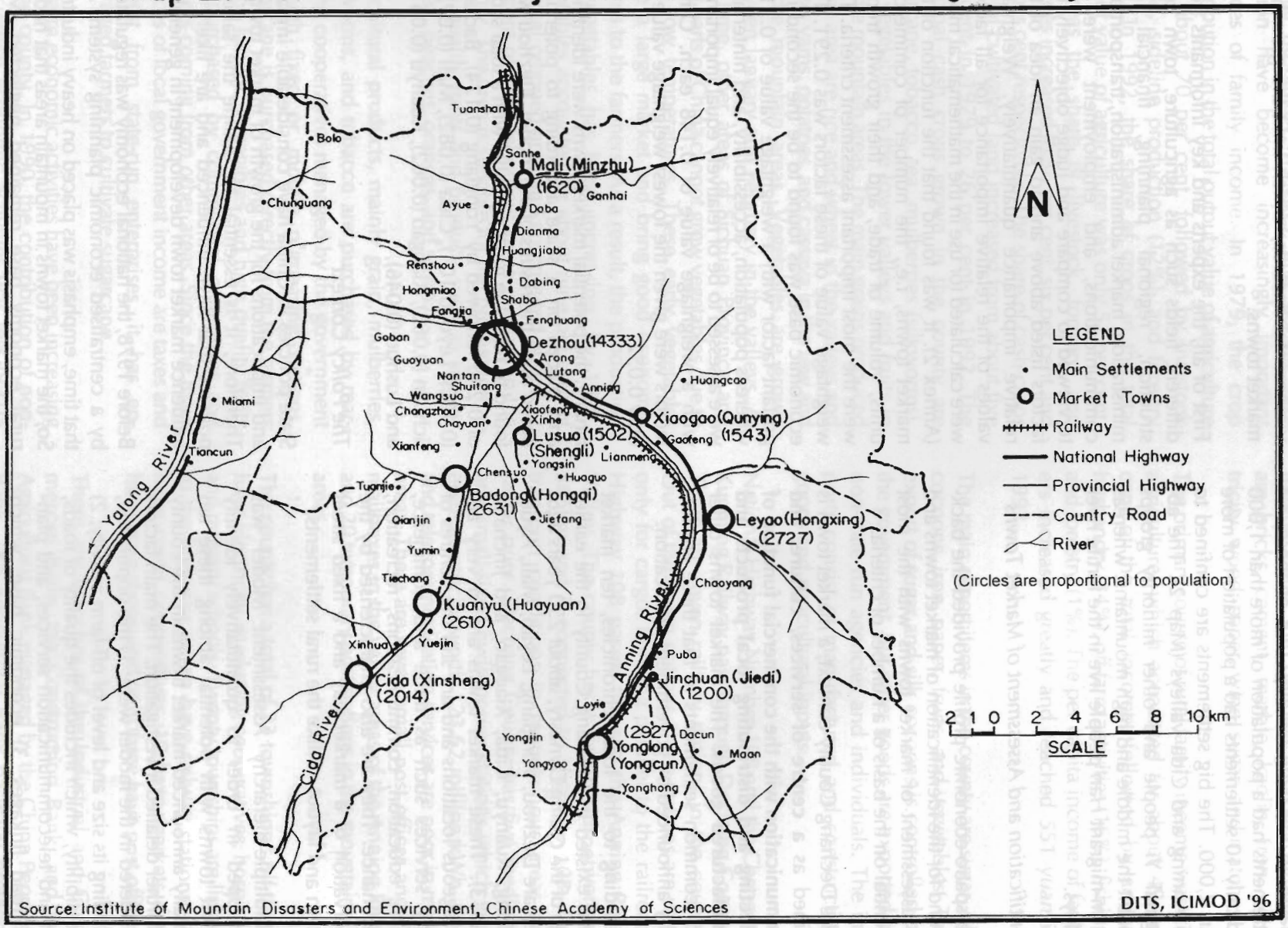
Finally, the potential market towns were identified and placed on a scale according to potential, based upon the results of the model. Dezhou was found to have the most potential with a total score of 0.246 followed by Yonglang (0.174), Badong (0.102), Leyo (0.101), Cida (0.082), Mali (0.072), Jichuan (0.068), Xiaogao (0.062), Kuanyu (0.051), and Lushuo (0.046).

The Policy Context

State policies in China have considerable impact and implications for the growth of market towns. Therefore, it is essential to outline the salient policies that have influenced and are likely to influence market town development in general.

Before 1978, the national economy was regulated by a centralised economic planning system. At that time, emphasis was placed on heavy industry. So, the market towns in mountain areas that had a rural economy base remained neglected. Migration of farmers from rural areas to urban centres was controlled by rationing state-supplied grains, edible oil, electricity, housing, and off-farm employment opportunities. Most rural inhabitants had

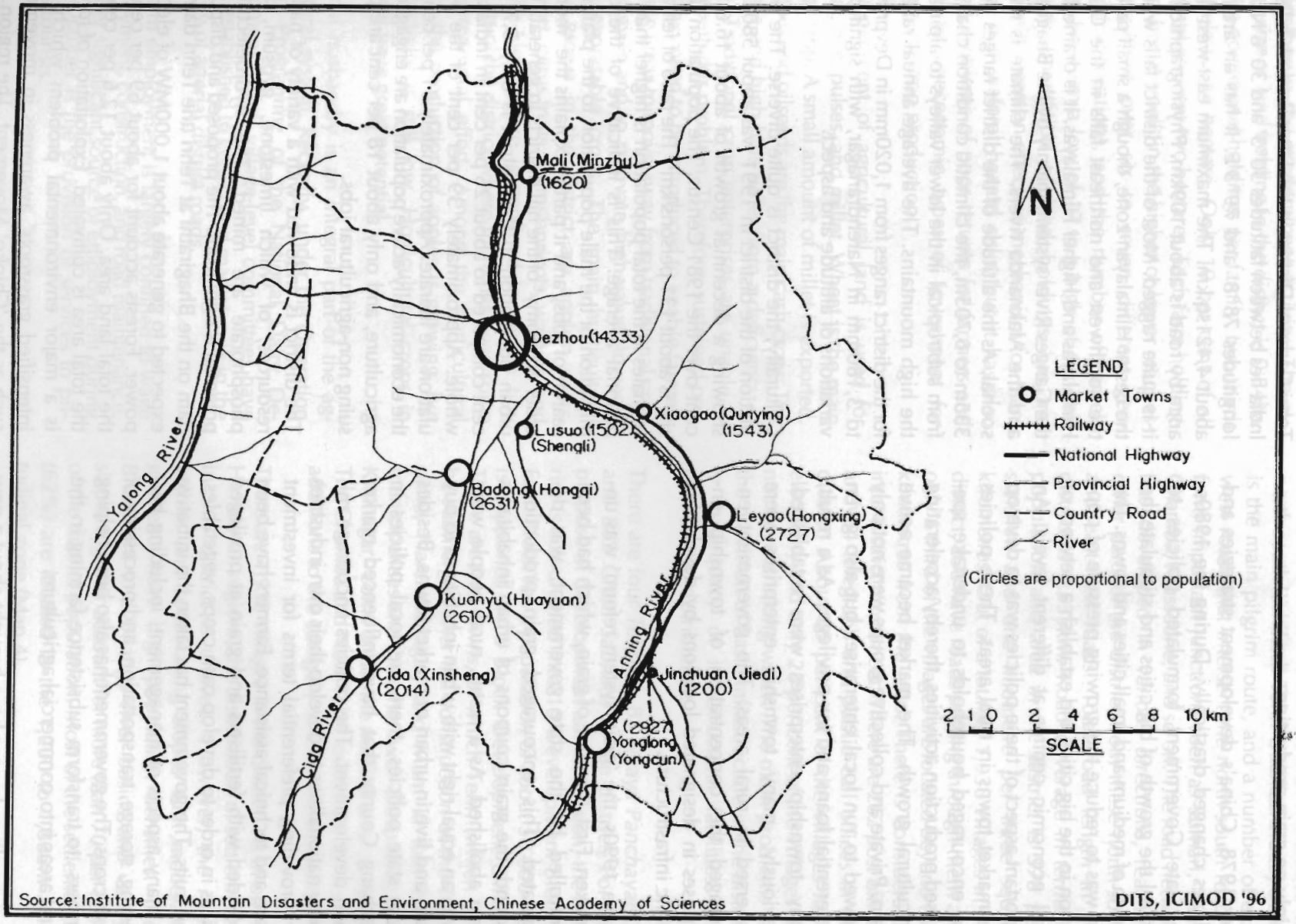
Map 2: Distribution of Major Settlements in Dechang County, China



Source: Institute of Mountain Disasters and Environment, Chinese Academy of Sciences

DITS, ICIMOD '96

Map 3: Distribution of Market Towns in Dechang County, China



to stay in the countryside and grow their own food. Individual economic activities were not encouraged. Individual non-agricultural undertakings were restricted. Farming concentrated mainly on grain production.

After 1978, China's development strategies and policies changed drastically. During the 1980s, the State Government formulated policies to control the growth of big cities and stimulate the growth of medium and small cities and towns. The aim was to reduce the growing pressure of population in the big cities and establish a network of local economic centres at different levels. An important aspect of these policies was to develop the market towns in rural areas. These policies also encouraged households to undertake specialised production activities, thereby accelerating agricultural growth. The market became active again. Private and collective groups were not only allowed to run local enterprises but also given preferential loans and tax privileges. As a result, many township enterprises were established. Previously, many township enterprises were dispersed in rural areas. The government encouraged the concentration of township enterprises in designated locations by developing public infrastructure.

In the 1990s, the 'grain system reform' was undertaken. First, the price of grain, which had been controlled by the state government, was deregulated. This encouraged grain production. Second, the grain coupons of urban inhabitants were abolished. As a result, rural people were given an equal right with urban inhabitants to buy grain and live in urban or market towns. Besides these state policies, there are local policies in Dechang County that have influenced market town development. The policies encourage minority nationalities to develop their own industries by providing preferential terms for investment loans and technical assistance. Farmers have been provided with fertilisers and grain at privileged prices in order to develop cash crops, vegetables, and fruits. The government has taken the initiative in many aspects of management, including harvesting, storage, transportation, and processing of cash crops. The government has also been helping farmers to transform subsistence farming in the rural areas into commercial agriculture.

These policy changes have brought about a new dynamism in market town activities. There is more scope for the spontaneous growth of functions in market towns now than there was earlier.

Tehri Garhwal District, Uttar Pradesh, India

Spatio-economic Profile

Tehri Garhwal District in the Uttar Pradesh hills of India lies between latitudes 30°3' and 30°6'N and longitudes 78°8' and 79°3'E. It has an area of about 4,421sq.km. The maximum east-west distance by road is about 109km. Physiographically, it is quite rugged. Most of the district falls within the Lesser Himalayan zone, though a small part in the southwest and northeast falls in the Outer Himalayas and Higher Himalayas. It is drained by the Ganges River system, mainly by the Bhagirathi and the Alaknanda rivers. The climate is monsoonal. As the altitude of the district ranges from 335m to 6,705m, the climatic condition changes from subtropical in the lower valleys to alpine in the high mountains. The average annual rainfall for the district ranges from 1,020mm in Devprayag to 3,180mm in Narendranagar, with significant variations of altitude and aspect.

Culturally, the district is quite diverse. The population of the district in 1991 was about 580,000 showing a decennial growth of about 16.6 per cent over the 1981 Census. The population density is about 131 persons/km^2. The ratio of females to males in the total population is higher than the national average. This is indicative of the outmigration of the male population to the plains in search of jobs, and it partly explains the 'money order economy' of the hill districts in general. The urban population in the district is only 5.7 per cent compared to about 26 per cent in India as a whole. Approximately 39 per cent of the population are literate. Approximately 81 per cent of the economically-active population are engaged in agriculture, and only about 18 per cent are pursuing non-agricultural jobs.

The district is endowed with a variety of natural resources, of which limestone, gypsum, and phosphorate are mined. The hydroelectricity potential is significant. The proposed and disputed dam on the Bhagirathi at Tehri (the Tehri dam) is expected to generate about 1,000MW of electric power. Forests account for about 69 per cent of the total land area. Only about 12.6 per cent of the total area is cultivated. Exploitation of forests is a major environmental problem which has intensified grassroots' awareness in movements such as the 'Chipko' Movement. The region has considerable potential for the growth of high-value horticultural and floricultural crops as well as aromatic and medicinal plants.

Tourism of a religious nature is an important activity. The potentials for nature-based tourism and related activities are also substantial.

Agriculture is the predominant activity. The average size of land holding in the district is 0.84ha. Of the operational holdings per family, two-thirds are below one hectare. Only 10 per cent of all holdings are over two hectares. Each farm holding-either big or small, in the higher or lower reaches-is dispersed over six to seven different geographical locations, and the number of parcels range between a low of 17 to a high of 40. This high fragmentation of land holdings has traditionally been an effective mechanism for managing high natural hazard risks, but it has also posed problems of poor returns for farmers and leads to uneconomic types of investment for improving crop production.

Sixty per cent of agricultural land is used for wheat, rice, pulses, and millet. Wheat is the main cereal crop. A small amount of millet is exported. Potatoes and oilseeds are the main cash crops. The middle and high hills suffer from a deficiency of food. Traditional crop enterprises are unable to cope with this problem. Therefore, sustained programmes need to be introduced to enable farmers in these areas to move away from traditional crop enterprises and to cultivate high-value, low-volume exportable crops. The main horticultural crops grown in the district are apples, pears, peaches, citrus fruits, plums/apricots, walnuts, and litchis. Horticulture is confined to certain tiny pockets of the district where there has been some entrepreneurial effort. Among the horticultural crops, the production of apples is growing, but productivity is still low. Horticultural crops in general have great potential.

Animal husbandry is an integral part of the agricultural system. Recently, under the Operation Flood Programme of the National Dairy Development Board, village-level committees have been established to collect and market milk in the vicinity of arterial district roads.

Off-farm employment is largely confined to wage employment, construction, and road maintenance. Another significant source of employment during May-October is the provision of services to pilgrims/tourists.

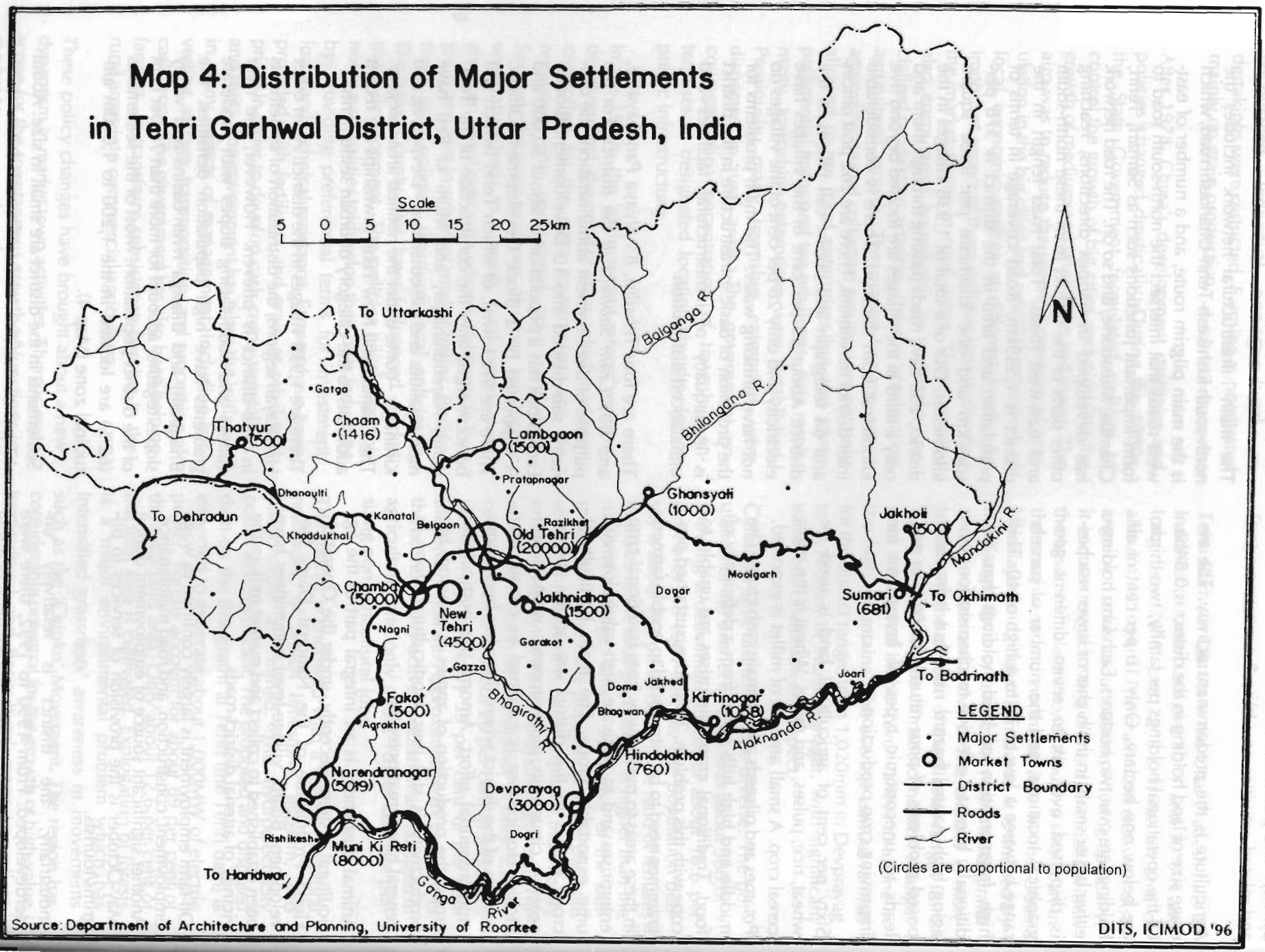
Industrially, the district is relatively underdeveloped. From 1990 to 1992, there were 107 small units with a total employment of about 1,400. Geologically and environmentally the district is not suitable for the establishment of heavy industries.

The main infrastructural network includes the north-south Rishikesh-Tehri-Uttarkashi road, which is the main pilgrim route, and a number of east-west roads that intersect the north-south road to form important junctions such as Sumari, Tehri, Chamba, Mussoorie, and so on. The road network has developed in various directions, reaching other parts of the district from these north-south and east-west roads. Total road length in the district is 1,535km. Road coverage in terms of population and area in the district is 378 persons/km and one kilometre per three square kilometres. Out of a total of 1,938 villages in the district, 256 have roads passing through them and only a third of the villages are located beyond five kilometres from the road. There is considerable inter-district movement. There are 262 post offices and 64 telegraph and public call offices in the district. About 65 per cent of the villages have electricity and only 28 per cent of the villages do not have drinking water. The main problems for the provision of basic infrastructure in the district is inadequacy of infrastructural facilities and unbalanced distribution.

There are four *Tehsil*(s), 85 *Nyaya Panchayat*(s), and 885 *Gram Sabha*(s) in the district. For the purpose of development administration, the district is sub-divided into 10 Development Blocks. Each Block has a population of about 50,000 and is supported by a Block Development Officer. There are five towns, of which Tehri (which will be submerged after the construction of the Tehri dam), Narendranagar, and Muni ki Reti have municipalities and the other two - Devprayag and Kirtinagar - come under the notified area category. The Chamba and New Tehri townships are recent additions to the category of urban settlements.

There are 1,938 villages in the district. As in other Himalayan regions, the distribution of settlements in this district is uneven. However, the river valleys and south-facing slopes with moderate gradients have high population densities. The Bhagirathi and Bilanga river basins and valley slopes together account for more than 70 per cent of the district population. Most of the settlements (62%) are located in the 1,200 to 1,800m altitudinal zone (Map 4).

Settlements in the district are small in size. About 47 per cent of the total settlements have a population of less than 200. The percentage of settle-


Map 4: Distribution of Major Settlements
in Tehri Garhwal District, Uttar Pradesh, India
Scale
5 0 5 10 15 20 25km
N
To Uttarkashi
Balganga R.
Bhilangana R.
Gatga
Thatyur (500)
Chaam (1416)
Lambgaon (1500)
Pratapnagar
Dhanaulti
To Dehradun
Kanatal
Belgaon
Razikhet
Khoddukhal
Old Tehri (20000)
Ghansyali (1000)
Jakholi (500)
Mandakini R.
Moolgarh
Chamba (5000)
New Tehri (4500)
Nagni
Jakhnidhar (1500)
Dogar
Sumari (681)
To Okhimath
Garakot
Gazza
Joari
To Badrinath
Dome
Jakhed
Fakot (500)
Agrakhal
Bhagwan
Kirtinagar (1058)
Bhagirathi R.
Alaknanda R.
Hindolakhal (760)
Narendranagar (5019)
Devprayag (3000)
Dogri
Rishikesh
Muni Ki Reti (8000)
To Haridwar
Ganga River
LEGEND
Major Settlements
Market Towns
District Boundary
Roads
River
(Circles are proportional to population)
Source: Department of Architecture and Planning, University of Roorkee
DITS, ICIMOD '96

ments having populations between 200 to 499 and 500 to 999 are 39 and 12 respectively. Only two per cent of the total settlements in the district have more than 1,000 people.

Approximately seven per cent of the total villages in the district can be termed rural central places, each serving an average of 15 villages and covering an influence area of about 14sq.km. Almost every block has a number of rural central places which are normally at road junctions or roadheads.

Identification and Assessment of Market Towns

As part of the study in Tehri Garhwal District, basic information on all the settlements was collected and field surveys were conducted in all the 10 blocks of the district. With the help of this analysis and the discussions with government officials, businessmen, NGOs, local leaders, and other development-related personnel, a short-listing of market settlements on the basis of perceived potentials was reached. The overall assessment of market settlements was made on the basis of 30 different, variable scores, both quantitative and qualitative. These included aspects and trends in population growth; hinterland; central services; potentials in trade, industry, tourism; development initiatives through government or local NGOs and other agencies, and so on (Annex 3).

For the purpose of this study, a market town is defined as **a census town (urban settlement) or a nodal village (rural central places in the context of Tehri Garhwal), having a minimum of 20 perennial commercial establishments (functional units); not less than three government offices; and serving a population of at least 2,000, excluding its own.**

A total of 16 market towns was short-listed to assess their potentials (Map 5). Among these, New Tehri and Chamba were found to have the highest potential for development. Another assessment was carried out for ten of these market towns, which included aspects such as potentials for marketable surplus and infrastructural requirements. However, the special circumstances in the area necessitated that the study not only focus on particular towns but on the whole Mussoorie-Chamba-Rishikesh axis from the perspective of future growth potential. The settlements in this axis make an interconnected functional entity as far as marketing activities are concerned. Diverse economic activities ranging from cereal crops and tropical fruit to rabbit farming, tourism, and electronic cottage industries exist. Therefore, all the axis towns were taken up for assessment. The important settlements or transit points on this axis are Suavakholi, Thatyur, Dhanaulti, Kanatal, Chamba, New Tehri, Ranichauri, Nagni, Jajal, Fakot/Agrakhal, and Narendranagar (Map 5).

In the particular spatio-economic context of Tehri Garhwal District, the key to providing the necessary stimulus to development was seen as:

- the creation of specific action plans within the structure of programmes that already exist;
- the creation of entrepreneurship cells to encourage the spirit of enterprise;
- the creation of a series of backward and forward linkages for the production and marketing of produce; and
- identification and assistance in production of a range of marketable products, agricultural and others.

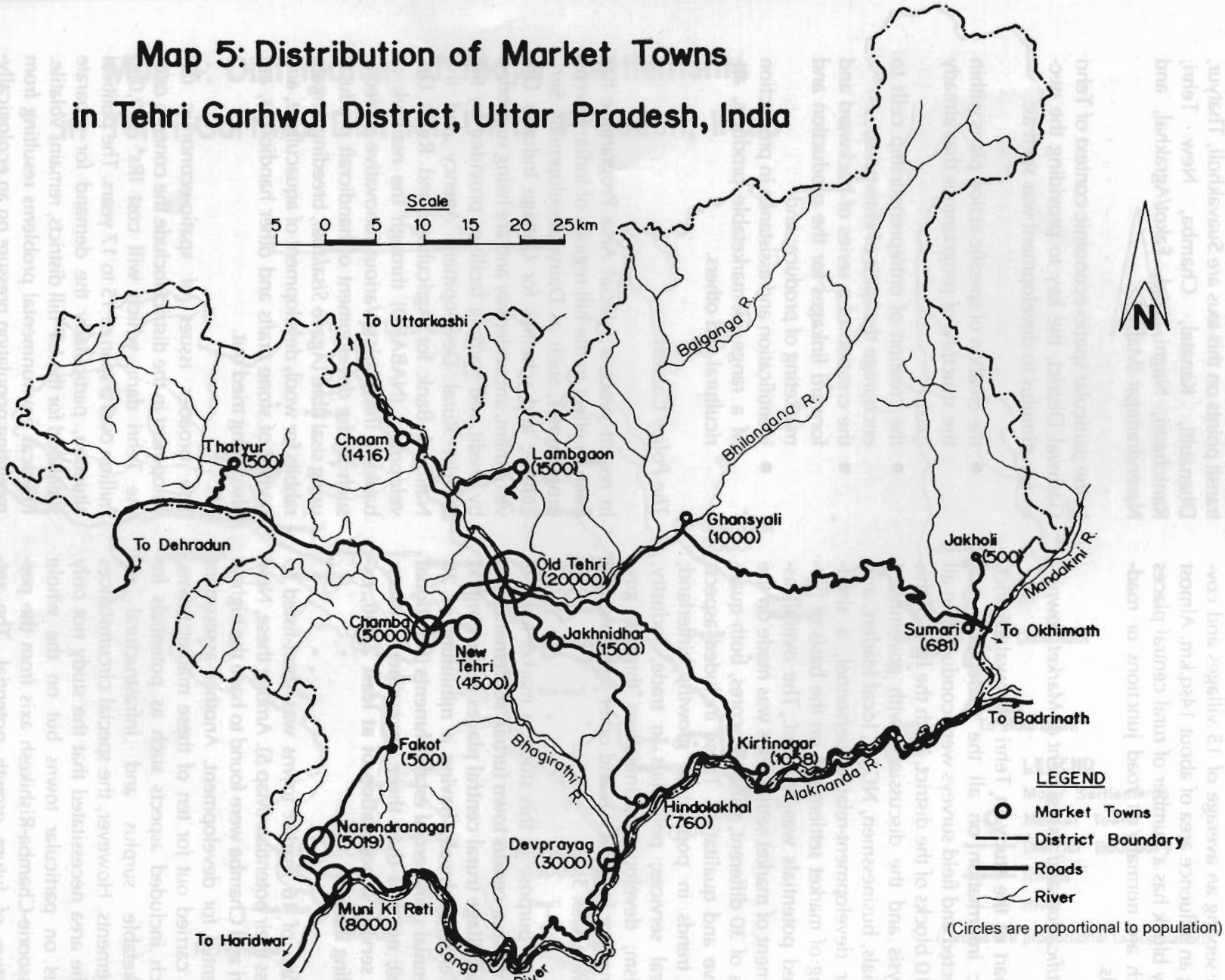
The Policy Context

In recent years, a Special Area Programme has been in effect in the hill regions of India. Several programmes, such as Dairy Development, Sericulture, and schemes for Cottage Industry Development, are underway and are being supported by credit and training facilities provided by the District Rural Development Agency and the National Bank for Agriculture and Rural Development (NABARD) through the network of banks in the district. Various innovative projects, such as the development of handicraft products using sisal fibre (*Agave Sisalana*), breeding Angora rabbits for wool, development of aquaculture, and revival of stone crafts and other handicrafts, are also being tried out.

The broader issues of spatio-economic development in the district include the concern over the Tehri dam, which will cost IRs[4] 300,000 million over a span of 15 to 17 years. The political situation, particularly the demand for separate statehood for the UP hill districts, remains volatile. Physical environmental problems resulting from mounting population pressure on an ecologically-

4. US$ 1.00 = IRs 31.36 in 1993

Map 5: Distribution of Market Towns in Tehri Garhwal District, Uttar Pradesh, India



Source: Department of Architecture and Planning, University of Roorkee

DITS, ICIMOD '96

fragile environment call for a well-coordinated, decentralised, integrated, people-focussed programme for development. Institutions, other than those of the government, also could be made to play a major development role based on participatory approaches. Although they are the backbone of the Garhwal economy, women bear the brunt of the growing environmental and economic problems. The zeal to improve the environment and economy on the part of women is manifested by the functioning of a number of *Mahila Mandal*(s) throughout Tehri Garhwal District.

The main development problems, as perceived by the government in the district, are related to inadequate irrigation facilities, land fragmentation, an inadequate marketing network, inadequate transportation and communication facilities, erratic and inadequate supply of electricity, absence of agro-based industries, and inadequate health and educational facilities. A block-level survey in the district has revealed that there is medium to high potential for the development of horticulture and floriculture in all the blocks. Except for Kirtinagar, there is great potential for the development of tourism and related activities. Out of a total of 10 blocks in the district, six have medium potential for industrial development and only five have medium potential for the development of agricultural crops.

Dang District, Nepal

Spatio-economic Profile

Dang District in Rapti Zone in southwestern Nepal typifies the demographic and economic conditions of the Inner *Terai* region of Nepal. The district lies between latitudes 27°40' and 28°15'N and longitudes 82°10' and 82°53'E with an area of 2,955sq.km. The elevation ranges from slightly over 200m to over 2,000m. The east-west extent is about 90km. The district has 39 VDCs (Village Development Committees) and two municipalities. The district consists of three distinct physiographic regions : a) middle mountains, b) Siwalik hills and c) Dun valley and *Terai* plain. The Dun valleys, namely Dang and Deukhuri, account for more than 38 per cent of the total area of the district. The Rapti and Babai are the two important rivers. Because of the elevation range, a tropical climate prevails in the lower valleys and a warm temperate climate in the upper mountain areas. The average annual rainfall is about 940mm and is heavily concentrated in the summer monsoon season. Winters remain dry, for the most part.

The population of the district was 354,413 in 1991 with a slightly higher ratio of females. The overall dependency ratio[5] was about 35. The average annual population growth rate in the district has remained consistently high since the 1970s. It was 4.73 per cent between 1971 and 1981 and 2.9 per cent between 1981 and 1991. This high growth rate has been due to migration from the adjoining hill region, a phenomenon that has been pervasive throughout Nepal in the last three decades. As a result, the native *Tharu* population has been overwhelmed by migrants and in 1991 accounted for only about 30 per cent of the total population. The population density is about 120 persons/km^2. About 40 per cent of the district population were literate in 1991; this rate was only about 24 per cent in the case of women. The urban population percentage in 1991 was 15 and the movement of the people from rural areas to urban has been increasing. The development of basic infrastructural and service facilities such as roads, education, and health; increased commercial activities in urban areas; and the absence of non-farm employment in the rural areas are the reasons for the acceleration of rural to urban migration.

Agriculture is the main occupation, with 80 per cent of the economically-active population dependent on it in 1991. Manufacturing involved less than two per cent of the active population. The dependance on agriculture shows a decline, but there is an increase in the importance of personal and commercial services as well as in the commerce/business sector. The district does not have mineral and hydropower resources. About 26 per cent of the district land area is under cultivation and about 67 per cent is classified as forests. As in other parts of the country, the forests in this district are severely degraded and the general condition is deteriorating.

In terms of agricultural production, the main cereal crops are paddy, maize, wheat, barley, and millet. Oil seeds and potatoes are the major cash crops. Beans and lentils, although grown on small plots, are considered important by the majority of farm households, because they are sources of

5. Dependency ratio here refers to the proportion of children and old people in the total population

additional income. There has been a trend towards increasing cereal crop yields. However, depending upon the monsoon, fluctuations in crop yields are reported. The growth in cereal grain production has not been commensurate with population growth. The total area under cash crop farming has been on the rise. About 24 per cent of the total cultivated land is irrigated. Lack of year-round irrigation has resulted in low land-use intensity. The average land holding is about one hectare, but the operational holding is only about half a hectare. Land distribution is skewed and fragmented. Livestock is an important part of the farming system, but the productivity of livestock is quite low. The main horticultural crops are mangoes, bananas, guavas, jack fruit , lemons, and pomegranates. The prospects for specialisation and diversification of agriculture are considerable in Dang District. With the development of irrigation facilities and a marketing infrastructure, the agricultural surplus can provide the basis for the growth of agro-enterprises. Dang exports cereal grains to adjoining food-deficit hill districts. Oil seeds and potatoes find markets in other *Terai* and hill towns such as Nepalganj, Bhairahawa, Butwal, Pokhara, Palpa, and so on. There is great scope for the development of off-season vegetables in the district.

In 1994, Dang District reported a little over 600 small industrial units, half of which were agro-based industries. However, most appeared to be family-owned and employing units. The farm household in the district has an average annual income of NRs[6] 11,614. The main source of cash income in the district is the sale of cereal and cash crops, followed by civil service, trade, and livestock sales.

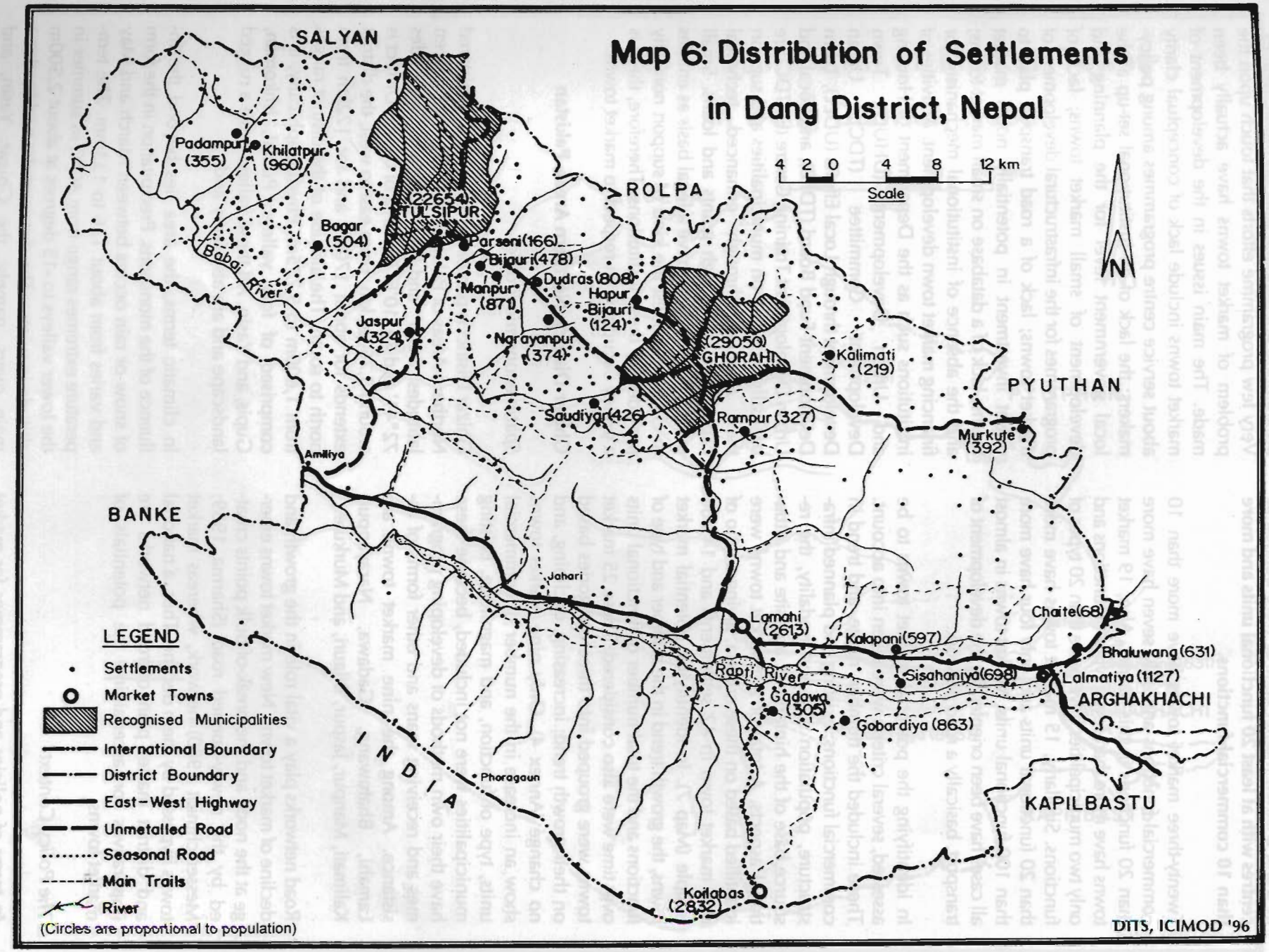
Dang has been the beneficiary of the USAID-funded Rapti Integrated Rural Development Project (RIRDP). The focus of the RIRDP has been on providing infrastructure (drinking water, irrigation) and village self-help programmes.

Dang is one of the easily accessible districts of Nepal. The construction of the East-West highway, which passes through the Deukhuri Valley, and the link with Ghorahi (Tribhuvan Nagar) and Tulsipur has created a spatio-economic context that has nurtured the growth of an east-west flow of trade and traffic. Similarly, the construction of north-south roads, such as Ghorahi-Pyuthan, Bhaluwang-Pyuthan, and Tulsipur-Salyan, has facilitated a north-south flow of trade and traffic. Formerly, Koilabas on the Indian border was the main trade node in this part of the country. At present, the total road length in the district is about 270km. A number of feeder roads links the towns of Ghorahi and Tulsipur with surrounding small markets. Road coverage in terms of population and area in the district is 1,322 persons/km of road length and one kilometre to 11 square kilometres of total area. Out of a total of 40 VDCs, including two municipalities in Dang District, 15 VDCs have a regular bus service, and 13 VDCs have a bus service in the winter season. Nine VDCs have electricity, and telephone facilities are available only in four VDCs. There are altogether 245 primary, 71 secondary, and five higher secondary schools in the district. There are more than 77 extension education programmes run by NGOs such as the Backward Society Education Project (BASE) and Social Upgrading in Progress of Educational Region (SUPER). There are 15 health centres in the district. The distribution of services and infrastructure clearly indicates that the location of services and infrastructure was carried out without considering the advantage of agglomeration in market town development. If the services and infrastructure were located in the nodal points, i.e., market centres, the advantages accruing from agglomeration would have resulted in service provision to a larger population.

Dang District has altogether 1,060 settlements, 743 of which could be located on the map. About 336 settlements have some commercial functions. The settlements are mostly distributed along the Babai and the Rapti rivers and their tributaries (Map 6). The Mahabharat region in the north and the Siwaliks are relatively sparsely populated. In terms of population size, nearly 59 per cent of the settlements have populations of less than 200, nearly 40 per cent of the settlements have populations between 200-1,400 and only about seven settlements have populations above 1,400. Even the designated municipal areas consist of a number of discrete settlements. The urban population in the district is about 15 per cent, which is higher than the national average.

There has been considerable growth of market centres in the district in the last decade. In 1988/89, there were only 33 market centres, which increased to 336 in 1994. The rapid growth of market centres indicates the growing commercial activity in the district.

6. US$ 1.00 = NRs 49 in 1993


Map 6: Distribution of Settlements
in Dang District, Nepal
SALYAN
ROLPA
PYUTHAN
BANKE
INDIA
KAPILBASTU
ARGHAKHACHI
Padampur (355)
Khilatpur (960)
(22654) TULSIPUR
Bagar (504)
Babai River
Parseni (166)
Bijauri (478)
Dudras (808)
Manpur (871)
Hapur Bijauri (124)
Jaspur (324)
Narayanpur (374)
(29050) GHORAHI
Kalimati (219)
Saudiyar (426)
Rampur (327)
Murkute (392)
Amiliya
Jahari
Lamahi (2613)
Kalapani (597)
Chaite (68)
Bhaluwang (631)
Rapti River
Sisahaniya (698)
Lalmatiya (1127)
Gadawa (305)
Gobardiya (863)
Phoragaun
Koilabas (2832)
4 2 0 4 8 12 km
Scale
N
LEGEND
Settlements
Market Towns
Recognised Municipalities
International Boundary
District Boundary
East-West Highway
Unmetalled Road
Seasonal Road
Main Trails
River
(Circles are proportional to population)
DTTS, ICIMOD '96

Identification and Assessment of Market Towns

In Dang District, market centres were defined as **centres with at least 20 functional units and more than 10 commercial functions.**

Twenty-three market towns have more than 10 commercial functions and only seven have more than 20 functions in this district. Also, 19 market towns have more than seven types of functions and only two municipalities have more than 20 types of functions. Similarly, 15 market towns have more than 20 functional units and only four have more than 100 functional units. Market towns in almost all cases have been oriented by the development of transport, basically a road network.

In identifying the potential market towns to be assessed, several criteria were taken into account. These included the number, range, and trend in commercial functions; existing and planned infrastructure, population size and nodality, the resource base of the hinterland, and site and situational aspects. A total of 25 market towns were identified based on these criteria, giving a ratio of one market town in 42 settlements and 14,000 people (Map 7). In identifying potential market towns, the growth trend in the number and type of functions and the total number of functional units over time were also considered. These 25 market towns were grouped into three categories based on their growth trend: increasing, declining, and no change (Annex 4). Only nine market towns show an increase in the number of commercial units, type of function, and magnitude. Existing municipalities were not included, because these have their own methods of developing programmes and receiving loans and other forms of assistance. Among the nine market towns are Lamahi, Bhaluwang, Gadawa, Narayanpur, Kalimati, Manpur, Jaspur, Bijauri, and Murkute.

Road networks play a vital role in the growth and decline of market towns. New market towns emerge at the node and the break-of-bulk points created by the newly-opened road (Sharma 1989; Messerschmidt 1980) network, whereas market towns bypassed by them decline. Thus, a national and district master plan of road networks are imperatives for ascertaining the potentials of market towns.

The Policy Context

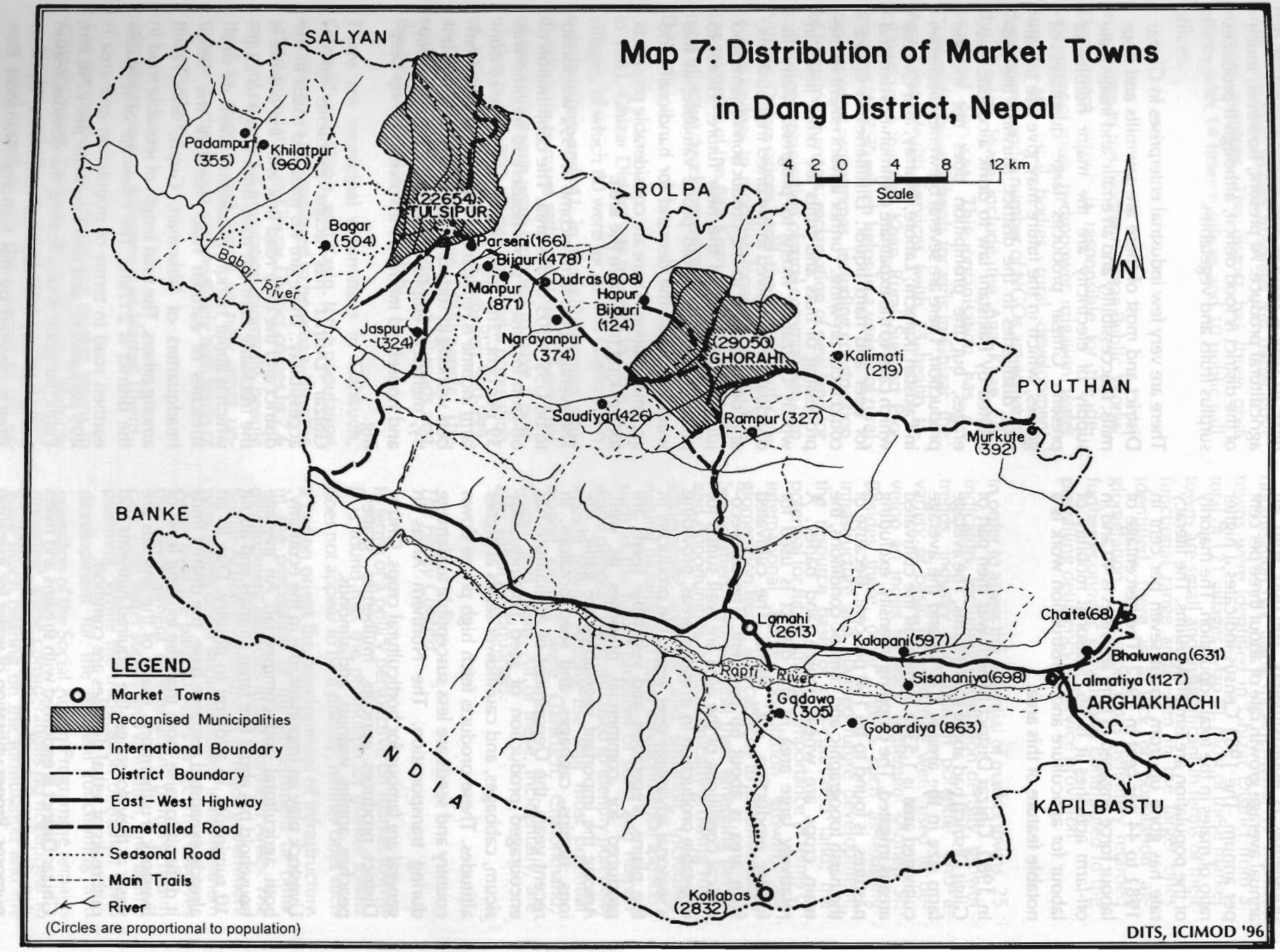
In terms of policies and programmes for market town development, although policy statements have been in existence since the Seventh Plan period (1985-90), government policies and programmes are focussed only on municipalities. Very few programme efforts that touch upon the problem of market towns have actually been made. The main issues in the development of market towns include lack of conceptual clarity about service centre programmes among policy-makers; the lack of an institutional set-up at the local government level for the planning and development of small market towns; lack of programmes for the infrastructural development of market towns; lack of a road transport plan to orient investment in potentially nodal market towns; lack of a database on small market towns; and the absence of institutional mechanism for financing market town development. Activities of institutions such as the Department of Housing and Urban Development (DHUD), Town Development Committee (TDC), Urban Development through Local Efforts (UDLE), Town Development Fund Board (TDFB), and Local and Urban Development Training Centre (LUTDC) are basically focussed on municipalities and support their activities through enhanced technical capabilities or through grants and loans. Small market towns do not have a legal basis as entities to claim or request the kind of support normally provided by these institutions. Therefore, there is a policy vacuum with respect to market towns.

Ghizar District, Northern Areas, Pakistan

Spatio-economic Profile

Ghizar District is part of the federally administered Northern Areas of Pakistan. It is located between latitudes 36°8' and 36°45'N and longitudes 72°41' and 74°10'E. The area of Ghizar District is around 5,760sq.km. From east to west, the district extends for about 170km and for 122km from north to south. The altitude of the district ranges from 1,600m to 5,775m. Physiographically, it is comprised of four valleys: Punial, Ishkoman, Gupis, and Yasin. All these valleys have a rugged landscape and are also fairly arid.

In climatic terms, the area lies beyond the influence of the monsoons. Precipitation in the form of snow or rain occurs between March and May and varies from about 126 to 133mm. The temperature extremes range from 40°C in summer in the lower valleys to -15 degrees at about 2,500m altitude in winter. The district is drained by three main rivers, namely, the Ghizar, Yasin, and Iskoman.


Map 7: Distribution of Market Towns
in Dang District, Nepal
SALYAN
ROLPA
PYUTHAN
BANKE
INDIA
ARGHAKHACHI
KAPILBASTU
Padampur (355)
Khilatpur (960)
(22654) TULSIPUR
Bagar (504)
Parseni (166)
Bijauri (478)
Dudras (808)
Manpur (871)
Hapur Bijauri (124)
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Kalimati (219)
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Babai River
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Recognised Municipalities
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Unmetalled Road
Seasonal Road
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River
(Circles are proportional to population)
DITS, ICIMOD '96

The total population of the district in 1981 was estimated to be around 72,000. The present population is approximately 108,000 with an annual average growth rate of about three per cent per annum. The 1981 Census indicates a higher ratio of males in the total population. The majority of the population are Ismaili Muslims. The literacy rate has gone up from about seven per cent in 1981 to 44 per cent in 1992. The percentage of labour force engaged in farm activities is 40 and in off-farm activities it is 46. Seasonal mobility of labour for agriculture and construction work is a notable feature of this area.

In 1980, Ghizar District (which was then part of Gilgit District) had about 6,718 farms. The average farm size in the area is 1.87ha and the average cultivated area is 1.53ha. Almost all the cultivated area is irrigated. The cropping intensity, excluding pastures, is found to be 160 per cent. Because of the harsh topographic and climatic conditions, the main crops are wheat, maize, and barley. A relatively large area in the district is used for fodder production, e.g., alfalfa. The cultivated farm area is about 68 per cent. The agro-ecological conditions of the area are well suited for vegetable production in irrigated areas, providing a seasonal advantage over vegetable producers in the plains. Vegetables and vegetable seeds are produced for commercial purposes as well. Among the important vegetables are garlic, onions, turnips, cabbages, and seed potatoes. In recent years, the Department of Agriculture has encouraged production of seed potatoes, capsicum, cabbages, and cauliflower seeds at higher altitudes. These products fetch high prices down country and seeds are less susceptible to damage during transportation. The Northern Areas in general are famous for horticultural crops. Ghizar District produces apricots, mulberries, grapes, peaches, apples, walnuts, and almonds.

Livestock play an important role in the economy, both agricultural and commercial. An average household has about five large animals and about 10 ruminants, in addition to poultry. Due to an already exhausted resource base, the district finds it difficult to raise more than the existing level of livestock. Furthermore, many of the animals are weak as they do not get the required nutrients and outbreaks of lethal diseases are common.

Ghizar District is endowed with streams and rivers that are snow fed and can be utilised for irrigation purposes. Proper utilisation of water for irrigation has the potential to substantially increase agricultural production as well as productivity. For the realisation of this potential, market towns will have to play a pivotal role in the marketing of agricultural produce. At present, however, much of the district is food deficit, although it produces surplus fruits and vegetables.

There are very few industrial enterprises in Ghizar District and most of these are sawmills and flour mills. Inaccessibility and an erratic and inadequate supply of electricity are the major hurdles at present. Ghizar produces large quantities of grapes, which in the future may give rise to various distilleries in the district. Muslims are prohibited by Pakistani law to drink alcoholic beverages, but the prohibition does not include production. There are several breweries/distilleries in Pakistan (Karachi, Lahore, Murray, and Quetta) which cater to the expatriate community's demand for beer and hard liquor. Distilleries in Ghizar could focus on wine. Further advancement in the processing of nuts and fruits are other fields in which Ghizar is likely to progress. Many individuals are involved in the dried fruit business, and development in the production of jams and juices is foreseen in the near future. Efforts to promote tourism would prove valuable, as this would increase the demand for handicrafts and accommodation. There are considerable prospects for trekking tourism in the area.

The average gross farm income in 1992 was found to be US$ 1,305 in this area. The contribution of off-farm income to gross household income was 39 per cent. The most important source of non-farm income is remittances from household members working in surrounding areas or down country, members employed by the Pakistani Army, and household members involved in shop keeping.

Ghizar District has acute problems of inaccessibility. There are no metalled roads in the district and the only road link with the outside is the truckable earthern road from Gilgit to Gupis which is about 107km. In addition, there are small stretches of earthen road that link the *Tehsil* headquarters of Ishkoman, Gupis, and Yasin, among others. The total length of jeepable road in the district is 217km. The coverage of jeepable earthen road in terms of population and area is 499 persons/km. and one kilometre per 27sq.km. Public transport is very limited; the obvious reason being that very few roads can take buses. The only stretch covered by the National Transport Corporation is Gilgit-Gahkuch. A major problem is

the number of bridges needed to link main settlements with roads and market towns. The district has 76 government schools, seven basic health units, and four 10-bed hospitals run under government auspices. The district has three post offices with 14 branch offices and 10 public call offices.

In addition to the Northern Areas Public Works' Department, which is responsible for the development of roads, hydropower, irrigation, water supply, etc, local bodies, rural development departments, and a number of NGOs are active in the district. These include the Aga Khan Educational Services. This organisation has 43 Diamond Jubilee Schools for girls in Ghizar, the Aga Khan Health Services (with 13 health facilities), and the Aga Khan Rural Support Programme (AKRSP) which helps in a variety of rural development programmes, including construction of irrigation channels, reclamation of new land for cultivation, organisation of rural communities into Village Organisations, and the creation of collective savings to mobilise local resources. The programmes of the Aga Khan Foundation are the most effective development programmes in Ghizar District.

In 1981, Ghizar District was reported to have 121 villages, of which 80 were located in Gupis/Yasin sub-divisions and 41 in Punial/Ishkoman subdivisions. In terms of settlement size, 25 per cent of the settlements were reported to have a population below 200, 40 per cent had a population of 200-499, 23 per cent had between 500-999, and 18 per cent had above 1,000 people. The settlements in Ghizar are oriented by roads and the availability of water (Map 8).

There are municipal committees in Gahkuch, Chatorkhand, Gupis, and Yasin. If the population of these areas is considered to be urban, then the urban population in Ghizar District comes to 7.6 per cent of the total population. Normally, people tend to migrate and locate in new areas undergoing urbanisation with relatively high levels of infrastructure.

Identification and Assessment of Market Towns

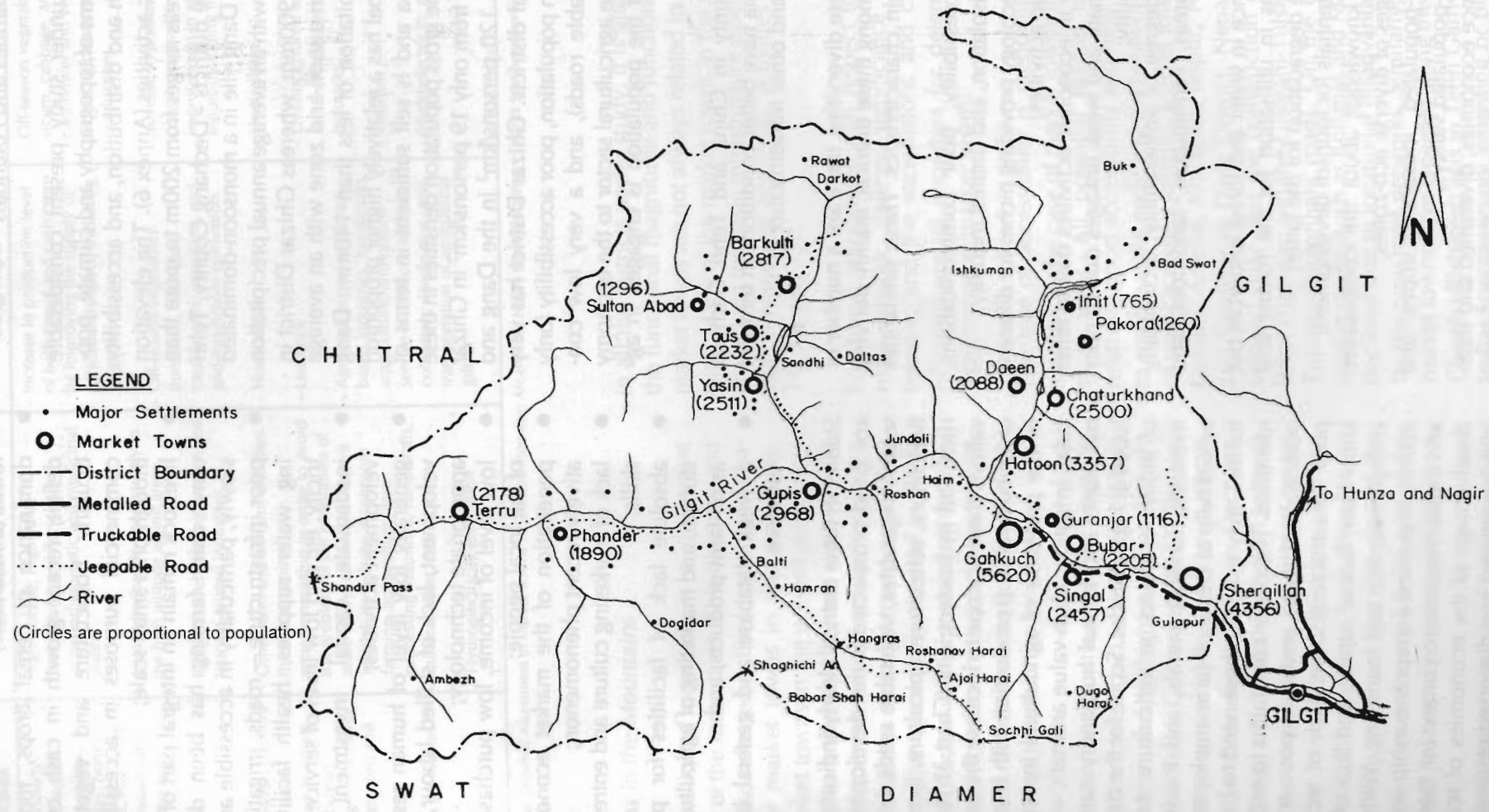
For the purpose of identifying market towns in Ghizar District, Pakistan, the Institutional Maturity Index for settlements, developed by the AKRSP, was used together with the criterion of the existence of at least 10 general stores. In addition to functional characteristics, the Institutional Maturity Index takes into account non-farm enterprises and skilled persons within the vicinity of the village organisation. By using these criteria, 17 market towns were identified in Ghizar District from a total of 121 villages (Map 9). Most of these market towns are small and insignificant in terms of their functional range and, even in the larger ones identified, there is a lack of population agglomeration. This aspect has definitely retarded further economic growth and contributed to the prevailing deficiency in service provision.

In order to assess the potential of market towns, 25 indicators, including population density, growth trends, industry and tourism potential, and a variety of basic infrastructure were used to develop an index for each settlement (Annex 5). Besides these, other criteria such as existing infrastructure and planned future development; the resource base of non-cultivated land; the potential for future strategic importance in terms of international trade; population growth, agglomeration trend, and capacity to accommodate 'newcomers'; women and their emerging needs and opportunities in economically-growing rural settlements; and site and situation, including natural hazards and other environmental aspects, such as the future problem of solid and human waste disposal, were also used to identify potential market towns. Among the four most potential market centres were Gahkuch, Chatorkhand, Gupis, and Yasin. All of these, incidentally, are also *Tehsil* headquarters.

The Policy Context

In terms of a policy perspective on market towns, it is found that the promotion of market towns does not appear to be a priority, neither does such a notion orient the development of infrastructure in the perception of the government or other development agencies in the Northern Areas. The Social Action Programme is a major government programme under implementation in the Northern Areas over the past 10 years or so. This involves the development of education, primary health care, rural water supply and sanitation, and family planning. While the implication of market town development for the efficient functioning and operation of the Social Action Programme remains important, these considerations do not appear to have much bearing on the formulation and the implementation of programmes.

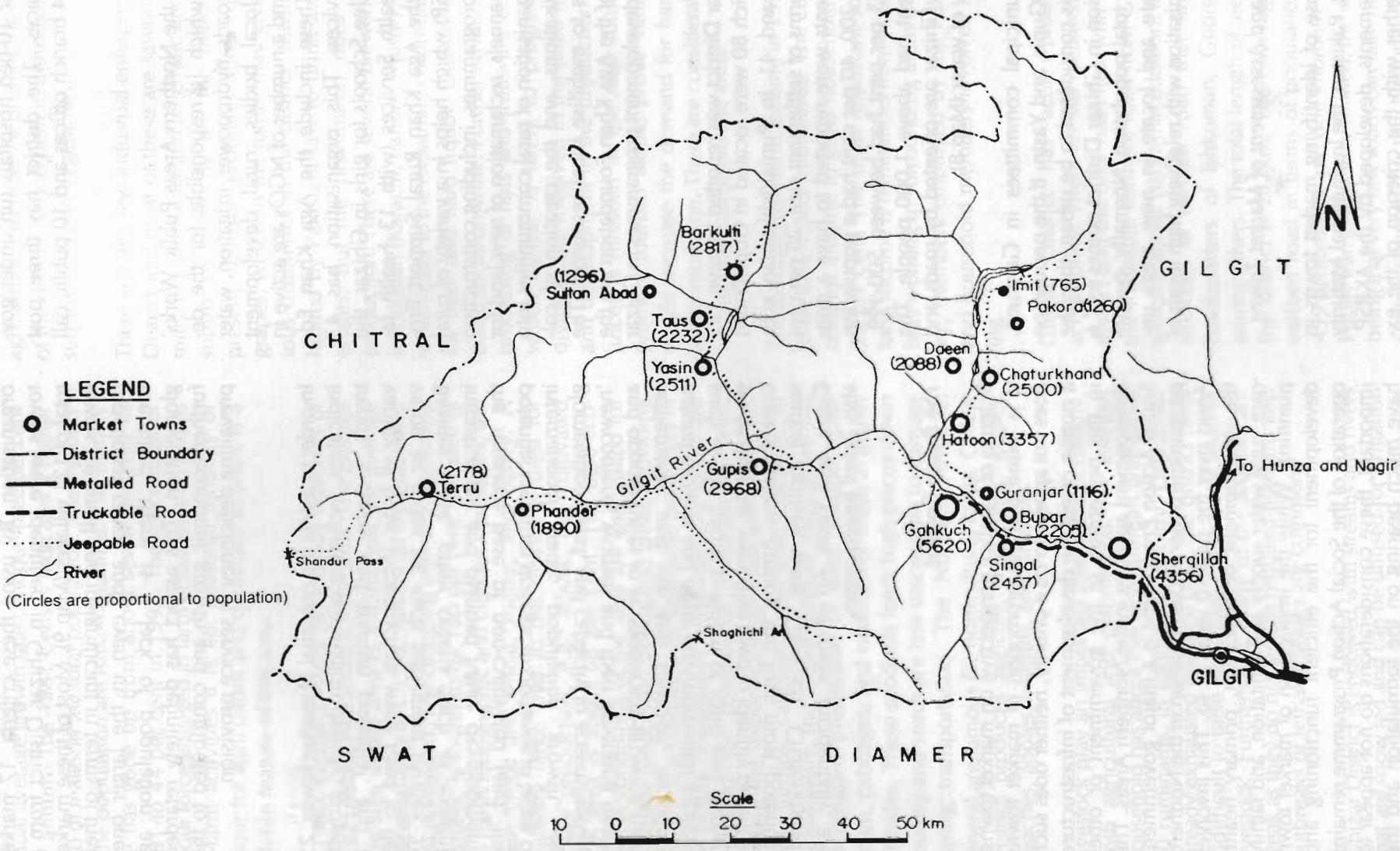
Map 8: Distribution of Major Settlements in Ghizar District, Northern Areas, Pakistan



Source: Atlas of Pakistan, Survey of Pakistan, 1985

DITS, ICIMOD '96

Map 9: Distribution of Market Towns in Ghizar District, Northern Areas, Pakistan



Source: Atlas of Pakistan, Survey of Pakistan, 1985

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A Comparative Perspective

Regional Similarities and Potentials

The districts under study present considerable diversity in terms of topography and climate, population growth and distribution, and accessibility and economic activities (Annex 6). The elevation of the study areas ranges from 200m to more than 5,000m. Three districts - Dechang County, Tehri Garhwal, and Dang - lie in a monsoon-dominated climatic zone with an average annual precipitation of more than 900mm, whereas Ghizar District in Pakistan lies in a semi-arid zone with an average annual precipitation of less than 140mm. Dang District in Nepal has a relatively higher proportion of plains' area and is self sufficient in terms of foodgrains. The gross population densities in these districts range from only 19 persons/km^2 in Ghizar to more than 120 persons/km^2 in the Dang and Tehri Garhwal districts. Ghizar District has very high growth in population, poor accessibility (only earthen jeepable roads), and a very low contribution of the agricultural sector to the economy (only 40% of the population is engaged in agriculture).

Dechang County in China and Tehri Garhwal District in India have better conditions in terms of accessibility and other infrastructure.

In spite of these diversities, there are a number of similarities among these districts, mainly deriving from mountain characteristics. These similarities are:

- poor accessibility, poor communications, general isolation, and limited mobility;
- diverse ecology providing niches for different economic activities;
- diversity in economic activities due to relief and climate and weak linkages due to poor accessibility;
- a high degree of vulnerability, tectonically active areas, earthquakes, landslides, and floods;
- abundance in water and forest resources but problems in utilisation for the former and resource degradation for the latter;
- high potentials for tourism development;
- limited knowledge about the comparative advantages of diverse eco-zones;
- sparsely-populated mountain slopes and densely-populated valleys;
- subsistence economies, diversified and interlinked activities, fragmented landholdings, low levels of specialisation;
- diversification as the traditional strategy for mitigating natural hazards and lack of any forms of insurance;
- dominance of cereal crops, mostly food deficit, recent growth in cash crops, particularly horticulture and vegetables for commercial purposes in accessible areas, though on a small scale;
- livestock remain an integral part of the economy, dairy farming has been developing slowly, particularly in accessible areas;
- poor infrastructure – roads, irrigation, drinking water supplies, health facilities, electricity, etc and low level of services;
- inadequate capital investment for development activities;
- generally low level of human resource development, lack of skilled labour, and little appropriate technology;
- low level of income, low purchasing power of the local people;
- penetration of the market economy a relatively recent phenomenon;
- lack of marketing culture and entrepreneurial skills;
- absolute lack of facilities for processing, storage, and marketing of agricultural as well as off-farm products; and
- a weak database and general lack of institutions.

Studies in these districts clearly indicate that there are good prospects for the development of off-season vegetables, vegetable seeds, horticulture, floriculture, sericulture, apiculture, livestock, tourism, and hydroelectricity (Chart 3). In the lower valleys, there is scope to increase the present level of agricultural crop production with improvements in the provision of agricultural inputs, in particular, irrigation. High-value aromatic and medicinal plants and animal husbandry can be developed at high altitudes. Scope for the development of industries based on agriculture, horticulture, livestock, forest, minerals, and tourism, which would help to create off-farm employment opportunities, may exist but these need to be discretely identified. The major constraints to exploiting the potentials of these areas are poor accessibility, poor infrastructural base, lack of technological know-how, lack of capital, and lack of organised entrepreneurship and marketing. With improved access, organised entrepreneurship and markets, and a spatio-economic context for marketing, the disadvantage of the economies of scale, due to highly scattered and dispersed resources in these mountain areas, can perhaps be avoided.

Chart 3: Development Potentials in the Districts under Study

Dechang, China	Tehri Garhwal, India	Dang, Nepal	Ghizar, Pakistan
- Cash crops, particularly sugarcane and off-season vegetables, in the valleys, horticulture (apples, honey, peaches, oranges, etc) in the low and middle mountains and livestock in the high mountain areas - Sericulture - Expansion of minerals (cement and ferroalloys), forests (wood, paper, and matches) and agro-based (sugar) industries and agro-processing plants (fruit, vegetables) and handicrafts - Hydroelectricity generation	- High-altitude, high-value horticultural and floricultural crops and aromatic and medicinal plants - Animal husbandry, particularly in the high altitude alpine areas - Religious and trekking tourism and tourism-related industries - Other farm and off-farm activities through organised entrepreneurship in order to avoid the problem of the economies of scale (dairy, apiculture, Angora rabbits, sericulture, mushroom farming, aquaculture, agro-processing industries, handicrafts, mineral water, etc) - Hydroelectricity generation	- Increase in production level of both cereal and cash crops by improving the supply of agricultural inputs, including irrigation - Off-season vegetables (tomatoes, cabbages, cauliflowers, capsicum, etc) and mushroom cultivation - Horticulture - Livestock - Agro-processing and forest-based industries, handicrafts, aquaculture, and other service institutions such as collection, distribution, and transportation of agricultural goods	- Off-season vegetables (capsicum, cabbage, and cauliflower and vegetable including potato seed production - Increase in production of cereal crops with improvement in agricultural inputs including irrigation - Horticulture - Livestock, forest and mineral-based small-scale industries - Tourism - Hydroelectricity generation

Source: Action Oriented Assessment of Market Towns in Selected Mountain Areas of the Hindu Kush-Himalayas - District Spatio-economic Profile Reports

Market Towns in the Mountains

The commonality of contrasts is a distinctive characteristic of the mountains. This diversity and contrast are also reflected in the location and characteristics of market towns in the mountains. Although market towns in the present study have been defined in a slightly different way in each country context, the diversity and contrast in the location and attributes of market towns are evident in the comparative summary presented in Table 3.1. The roles of accessibility, population density, and the productivity of the hinterland emerge very strongly in the distribution and functional attributes of market towns in the mountains.

Table 3.1 shows that the ratio of market towns to settlements is the lowest (1:7) in remote Ghizar in Northern Pakistan, and the highest in the relatively densely-settled Tehri Garhwal (1:122). The average population served by a market town ranges from 6,000 in Ghizar to 7,000 in Dechang, 14,000 in Dang, and 36,000 in Tehri Garhwal. The size of the hinterland on an average ranges from 339sq.km. in Ghizar, 276sq.km. in Tehri Garhwal, 118sq.km. in Dang, and 99sq.km. in Dechang. It may be noted that the size of the hinterland is influenced more by the area of the district than the process of population distribution.

Although some basic pattern of settlement agglomeration is evident in terms of population size in all the districts under study, it is also seen that the functional magnitude and functional range of market towns are not always related in the mountains. Many of the market towns in the study areas are lacking the basic infrastructure essential for the agglomeration of economic activities (Maps 10, 11, 12, and 13).

Locational advantages with respect to a trail or road network, strategic significance of the settlement, and the sociohistoric and cultural significance are all important for determining the significance of market towns.

The role of accessibility is predominant as evidenced in the case of market towns in almost all study areas. All potential market towns have relatively good accessibility and new towns tend to emerge at the node and the break-of-bulk points of major transport arteries. Market towns, such as Lamahi, Amelia, Khilatpur, Jaspur, Narayanpur, and Saudiyar in Dang District, Nepal, were developed only after the construction of the East-West Highway and the Ghorahi-Tulsipur and the Tulsipur-Purandhara roads. On the other hand, market towns, such as Koilabas and Manpur, have declined due to locational disadvantages created by the new road networks. Similarly, many new market towns have emerged along the Mussoorie-Chamba-Rishikesh axis in Tehri Garhwal District, India. Spontaneously emerging or planned road networks may be the single, most important

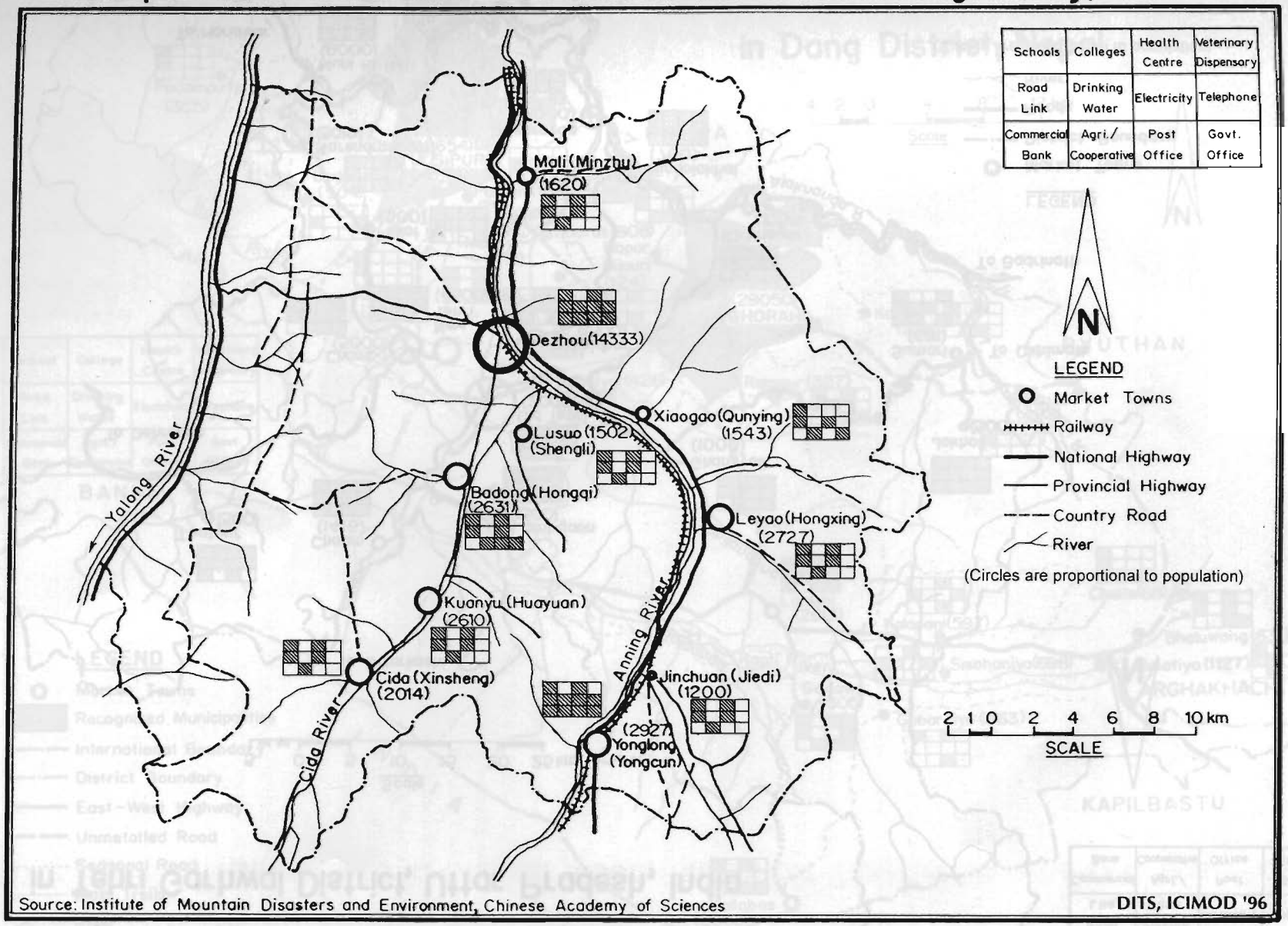
Table 3.1 Settlements and Market Towns: A Comparative Perspective

Characteristics	Dechang, China	Tehri Garhwal, India	Dang, Nepal	Ghizar, Pakistan
Total number of settlements	337	1938	1060	121
Percentage of settlements with populations of less than 200	78	47	59	25
Percentage of settlements with populations between 200-999		51	40	57
Percentage of settlements with populations greater than 1000	22	2	1	18
Percentage of settlements with central or commercial functions	23 (township)	7 (central places)	32 (commercial centres)	
Number of market towns	23	16	25	17
Ratio of market towns to settlements	1: 15	1: 122	1: 42	1: 7
Average population size per market town	7,000	36,000	14,000	6,000
Average size of hinterland (km^2)	99	276	118	339
Accessibility	Out of a total of 23 townships, 87 per cent have a highway passing through.	Out of a total of 1,938 villages, 13 per cent have roads passing by, 53 per cent have roads within 5km.	Out of a total of 40 VDCs, 38 per cent of VDCs have a regular bus service, 32 per cent have a seasonal bus service, and 30 per cent do not have such facilities	No highway, only a jeepable road

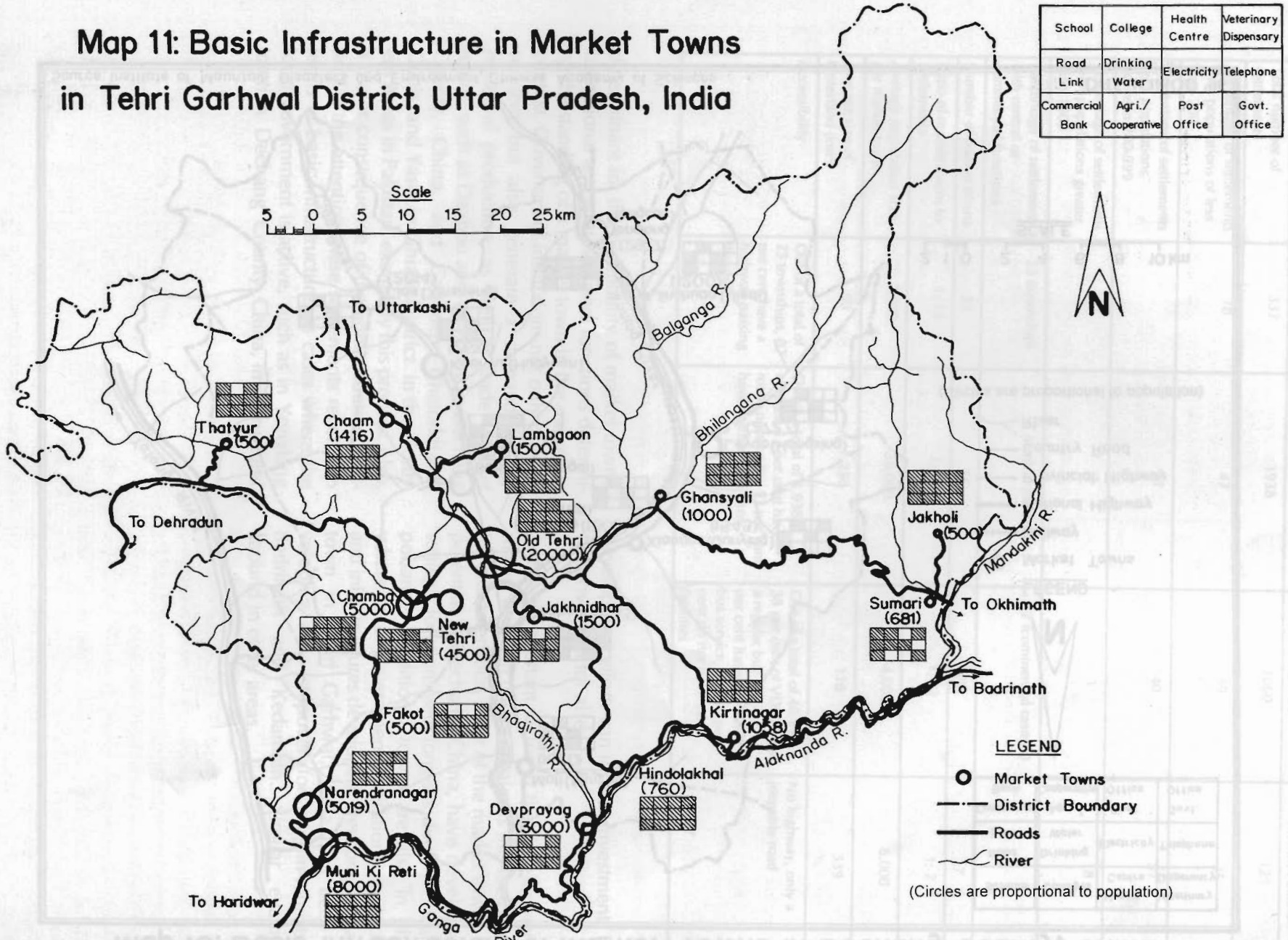
determinant for the potentiality of market towns. Institutional and administrative functions determine the standing of a market town in the mountain context. Government institutions not only provide services but also generate a demand for agricultural production, as well as trade. Market towns, such as Dezhou and Yonglang in Dechang County, China, and Gahkuch, Chatorkhand, Gupis, and Yasin in Ghizar District in the Northern Areas in Pakistan, exemplify this process. Also, a major consequence of the administrative function is the attention these settlements receive in terms of basic infrastructure. In cases where the local government is active, such as in Yonglang town in Dechang County, China, infrastructural development efforts can induce investments from the private sector also.

Another important factor in the development of market towns in the mountains is the sociohistorical characteristics. Most of the market towns with potential in Dechang, China, have developed in strategic locations with long-standing historical importance. Traditional towns are also in places where local government institutions are located and infrastructures developed. Deveprayag market town in Tehri Garhwal, India, has been developing as a stopover for pilgrim-tourists to Badrinath and Kedarnath. Similar examples abound in other areas.

Map 10: Basic Infrastructure in Market Towns in Dechang County, China

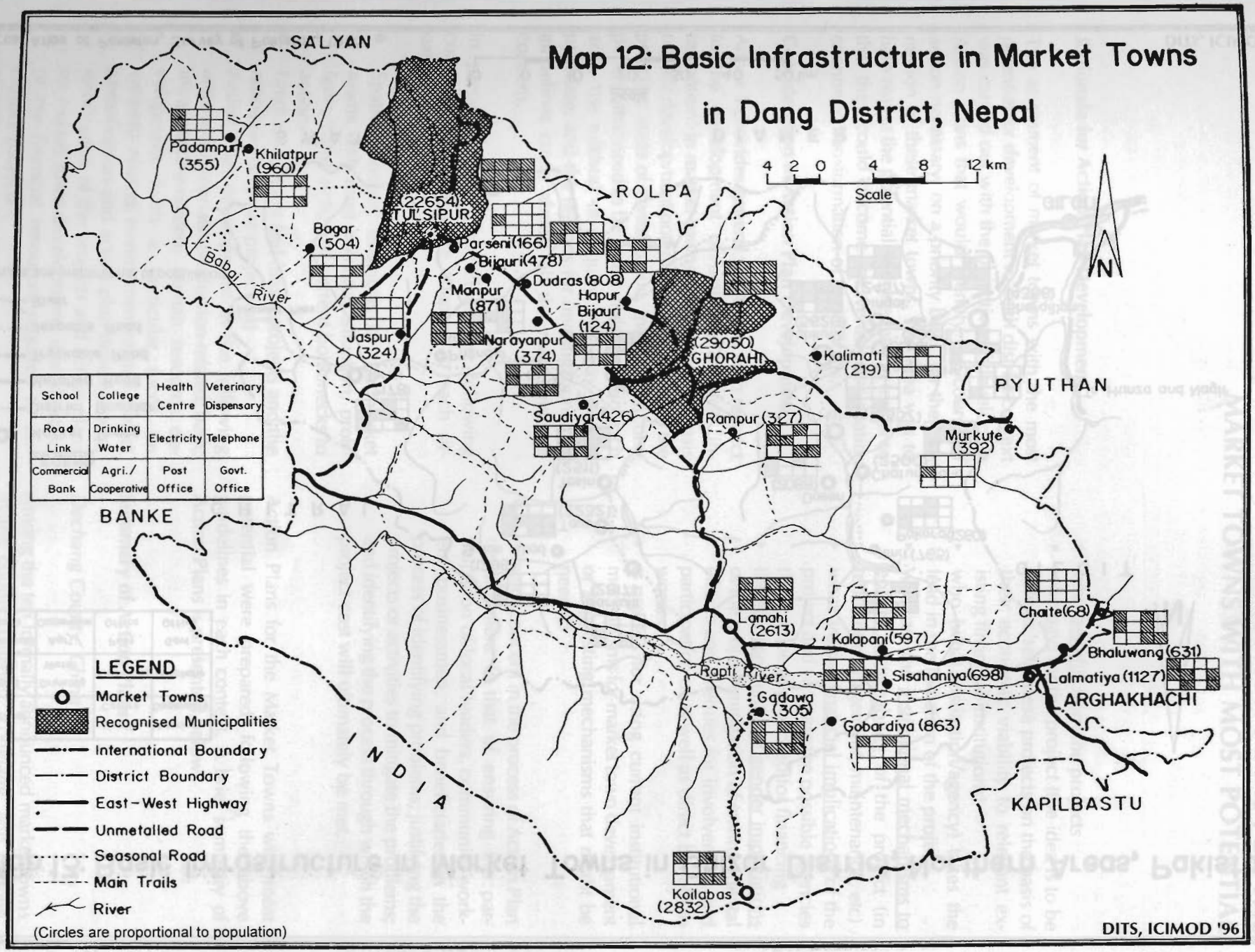


Map 11: Basic Infrastructure in Market Towns in Tehri Garhwal District, Uttar Pradesh, India



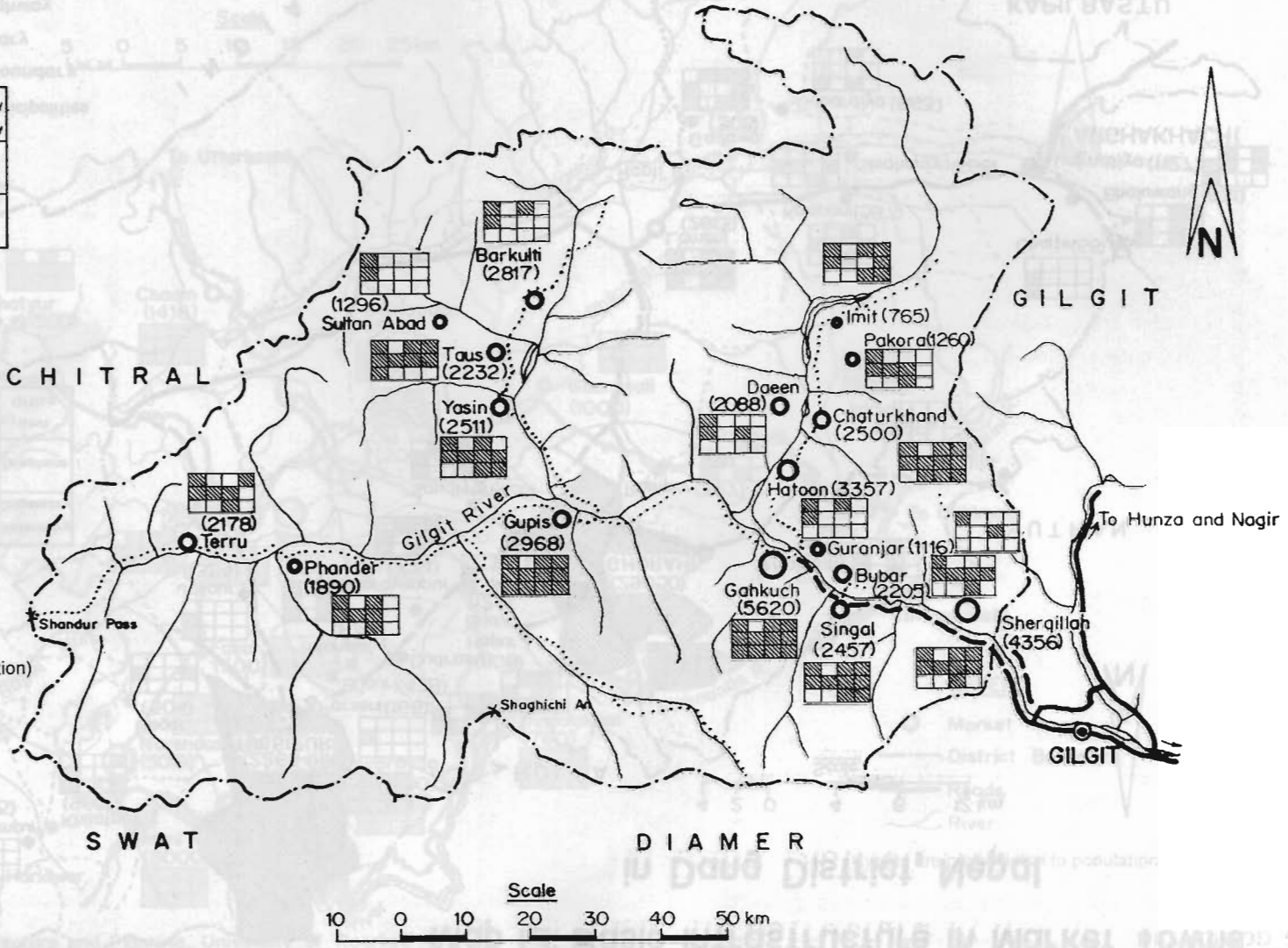
Source: Department of Architecture and Planning, University of Roorkee

DITS, ICIMOD '96


Map 12: Basic Infrastructure in Market Towns in Dang District, Nepal
SALYAN
ROLPA
PYUTHAN
BANKE
INDIA
KAPILBASTU
ARGHAKHACHI
Padampur (355)
Khilatpur (960)
(22654) TULSIPUR
Bagar (504)
Babai River
Parseni (166)
Bijauri (478)
Manpur (871)
Dudras (808)
Hapur Bijauri (124)
Jaspur (324)
Narayanpur (374)
(29050) GHORAHI
Kalimati (219)
Saudiyar (426)
Rampur (327)
Murkute (392)
Lamahi (2613)
Kalapani (597)
Chaite (68)
Bhaluwang (631)
Rapti River
Sisahaniya (698)
Lalmatiya (1127)
Gadawa (305)
Gobardiya (863)
Koilabas (2832)
4 2 0 4 8 12 km
Scale
N
School | College | Health Centre | Veterinary Dispensary
Road Link | Drinking Water | Electricity | Telephone
Commercial Bank | Agri./ Cooperative | Post Office | Govt. Office
LEGEND
Market Towns
Recognised Municipalities
International Boundary
District Boundary
East-West Highway
Unmetalled Road
Seasonal Road
Main Trails
River
(Circles are proportional to population)
DITS, ICIMOD '96

Map 13: Basic Infrastructure in Market Towns in Ghizar District, Northern Areas, Pakistan

School	College	Health Centre	Veterinary Dispensary
Road Link	Drinking Water	Electricity	Telephone
Commercial Bank	Agri./ Cooperative	Post Office	Govt. Office



LEGEND

- Market Towns
- District Boundary
- Metalled Road
- Truckable Road
- Jeepable Road
- River

(Circles are proportional to population)

Scale

10 0 10 20 30 40 50 km

Source: Atlas of Pakistan, Survey of Pakistan, 1985

DITS, ICIMOD '96